A

DISCOURSE

ON THE

SMALL POX

AND

MEASLES,

BY

RICHARD MEAD,

Fellow of the Royal Colleges of Phyſicians at *London* and *Edinburgh*, and of the Royal Society, and Phyſician to His Majeſty.

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To which is annexed,

A TREATISE on the ſame Diſeaſes, by the celebrated *Arabian* Phyſician *ABU-BEKER RHAZES.*

The Whole tranſlated into *Engliſh*, under the Author's Inſpection,

By *THOMAS STACK*, M. D. F. R. S.

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PREFACE.

A *Conſiderable part of this* Diſcourſe *was written by me many years ſince; and the whole had been finiſhed and given to the Public long ago, would the buſineſs of my profeſſion, in which I have been conſtantly engaged, have allowed me time to do it. However, I flatter myſelf, that this intermiſſion of the work will in the main turn to the advantage of the reader: becauſe whatever inconveniences may attend age, they are for the moſt part amply compenſated by daily acquiſitions of knowledge and experience. Wherefore, without farther apology, I ſhall now briefly lay down the motives, which firſt induced me to write on this ſubject.*

In the year 1717 *the learned Doctor* Freind *published* the first and third books of Hippocrates's Epidemics, *illustrated with* nine Commentaries concerning Fevers. *Of these the* seventh *treats of* purging in the putrid fever, which follows upon the confluent Small Pox; *and in support of his opinion, he has annexed to it the letters of four physicians to himself on that subject, one of which is mine. For after having been several years one of the physicians to St.* Thomas's Hospital, *in the year* 1708 *I observed, that some of my patients recovered from a very malignant sort of Small Pox, even beyond expectation, by a looseness seizing them on the ninth or tenth day of the disease, and sometimes earlier. Hence I took the hint, to try what good might be done by opening the body with a gentle purge on the decline*

cline of the diſtemper, eſpecially where the patient had conſtantly been coſtive from the beginning; which is far from being an uncommon caſe. The ſucceſs was in a great meaſure anſwerable to my wiſhes: for by this method I recovered many, who were in the moſt imminent danger.

At that time, and indeed during the remainder of his life, I was ſtrictly joined in friendſhip with Dr. Freind; *and as we frequently converſed on the buſineſs of our profeſſion, I explained this point of practice to him, and met with his approbation. Soon after this, he was called to a conſultation with two other eminent phyſicians, on the caſe of a young nobleman, who lay dangerouſly ill of the Small Pox: whereupon he propoſed my method. But they obſtinately oppoſed it until the fourteenth day from the eruption, when the caſe ap-*

pearing quite desperate by convulsions with a lethargy coming on apace, they consented to give him a gentle laxative draught; which had a very good effect. Hereupon Dr. Freind *gave his opinion to repeat it; but that was over-ruled, and the patient died the seventh day after. The doctor himself has given an ample account of this case*[1].

This affair soon made so great a noise, that even the gentlemen of the faculty were divided upon it, some commending, others finding fault with Dr. Freind's *advice: which so essentially affected his reputation, that he thought himself under a necessity of vindicating it; and therefore he entreated me to send him the purport of our former conversation in writing. Such was our friendship, that I soon*

[1] Freindi Opera, p. 263.

complied

complied with his request; and he shewed my letter to Dr. Radcliffe, *(who at that time was very deservedly at the head of his profession, upon account of his great medical penetration and experience, and had honoured me with a considerable share of intimacy) and told him withall, that he intended to publish his* Defence. *Whereupon Dr.* Radcliffe *obtained leave of me for Dr.* Friend *to annex my letter to his book. But after two or three sheets had been printed off, he was prevailed on by some friends to drop his undertaking; and thus both his work and my letter lay by for some years, that is, until he published his* Commentaries *on fevers. While he was employed in this work, he had fresh thoughts of printing the aforesaid letter with it; for which purpose I revised and enlarged the letter, translated it from the original* English *into* Latin, *and in short new-modelled*

it into the form, in which it appears in that book.

It very rarely happens, that a new method of cure in any diſeaſe gives univerſal ſatisfaction: however, not only Dr. Freind *and myſelf invariably perſiſted in this from the firſt time I mentioned it to him; but ſeveral phyſicians likewiſe, both in town and country, to whom we imparted it, found its ſalutary effects. But there never are wanting ſome men of ſo invidious a turn of mind, that their principal pleaſure conſiſts in blackening the reputation, and decrying the productions of others; as if what they ſtrip their neighbours of, was to be added to their own characters. Thus Dr.* Freind's *book had no ſooner appeared in public, but ſome of this ſtamp flew to arms, as if to ſave the common-wealth. In front of this band ſtood forth Dr.* John Wood-

ward,

ward, *phyſic profeſſor at* Greſham-College, *a man equally ill-bred, vain, and ill-natured, who, after being for ſome time apprentice to a linnen-draper, took it into his head to make a collection of ſhells and foſſils, in order to paſs upon the world for a philoſopher; thence having got admiſſion into a phyſician's family, at length by dint of intereſt obtained a Doctor's degree. This man publiſh'd a book intitled,* The ſtate of phyſic and diſeaſes [1], *wherein he took great liberties with Dr.* Freind, *and thoſe in the ſame ſentiment with him, but pointed his arrows moſt particularly at me; and theſe were neither arguments nor experiments, of which he had none, but bare-faced calumny and raillery, which he poured forth in abundance. 'Tis much againſt my will, that I thus revive the remembrance of that libel, which already is well nigh ſunk in-*

[1] London, 1718. 8vo.

to oblivion; and for which the author has been justly exposed by Dr. Freind: *nor should I have wasted paper on this insignificant story, had not the arrogance and vanity of the man extorted it from me. And in fine, if I have dwelt longer on this whole affair than might be expected, my motives were, first to explain who was the author of this method of practice, and then how little foundation Dr.* Woodward *had for his personal reflections and brawling.*

Now, as to what concerns this Discourse, *I must inform the public, that I have preferred perspicuity to flowers of language, by delivering every precept in as few words as to me seemed consistent with a clear conveyance of my notions: and I have added some particular rules and cautions relating to cathartics, for the sake of young physicians chiefly; who are often disposed too rashly to*

to attempt, and too eagerly to embrace, every novelty in practice, especially when handed down to them from persons, of whom they have a high opinion. For nothing can be so universally useful, as not to be liable to some exception; and it is sometimes as great a mark of sound judgment, not to do mischief, *as* to do good [1]. *Wherefore not only in this case, but in all others within the compass of our art, the physician ought constantly to remember that of the poet,*

Nothing does good, but what may also hurt.

When I had finished this small work, I thought it might be no less agreeable than useful to the gentlemen of the faculty, if to it I annexed Rhazes's *treatise* of the Small Pox and Measles, *faithfully translated from the original*

[1] *Hippocrates* in his first book of *Epidemics*.

[2] *Ovid. Trist.* Lib. ii. ℣ 266.

Arabic

Arabic *into* Latin: *as it contains an ample detail of many things relating to the nature and cure of these diseases, which, making proper allowances for time and place, coincide pretty much with the doctrines I have laid down. And indeed it has given me no small pleasure to see my sentiments confirmed by the greatest physician of the age he lived in. But I have often wondered how it came to pass, that this book had never before been published either in* Arabic, *or in* Latin *from the* Arabic. Robert Stephens *was the first who published it in* Greek, *at the end of his edition of* Alexander Trallian's *Work in the year* 1548[1]. *The* Greek *copy has been translated into* Latin *by three several persons; the first of whom was* Georgius Valla *of* Placentia, *whose version was pub-*

[1] The *Greek* title is, Ῥαζῆ λόγος περὶ λοιμικῆς.

lished

liſhed at Venice, A. D. 1498. *and went through ſeveral editions. This was followed by a ſecond, done by* Johannes Guinterius *of* Andernac, *printed at* Strasbourg *in* 1549: *and* Nicolaus Macchellus, *a phyſician of* Modena, *put forth a third printed at* Venice *in* 1555, *and again in* 1586[1]. *Now the* Greek *copy was not tranſlated directly from the* Arabic, *but from a* Syriac *verſion, which latter ſeems to have been done for the uſe of the common people; and upon comparing the* Greek *with this* Latin *tranſlation from the* Arabic, *which I now publiſh, it will appear very inaccurate by the entire omiſſion of ſome things, and faulty rendering of others; whether through the inſufficiency or negligence of the* Syriac *or* Greek *tranſlator, I ſhall not deter-*

[1] *Vid.* Fabricii Biblioth. graec. vol. xii. p. 692.

mine.

mine. But the manner how I acquired my copy is this.

After having caused a diligent search to be made in our public libraries for an Arabic *copy of this treatise, to no purpose, I wrote to my good friend the celebrated Dr.* Boerhaave, *professor of physic in the University of* Leyden, *intreating him to inform me, if such an one could be found in the public library there, which I knew to be very rich in* Arabic *manuscripts. A copy was accordingly found, which he got transcribed by the* Arabic *professor, and kindly sent it over to me; but it proved to be full of faults. This however I gave at two separate times to two gentlemen of character, to put it into* Latin. *One was* Solomon Negri, *a native of* Damascus, *extremely well versed in all the* Oriental *tongues; the other* John Gagnier,

Arabic *reader at* Oxford: *and they both performed the task with great diligence. But upon comparing the two versions, I observed that they differed in several places, not in the diction only, but even in the sense: wherefore as I have no knowledge of the* Arabic *tongue, I could not determine which of the two to prefer. This incertainty made me apply to my worthy friend the rev. Dr.* Thomas Hunt, *for several years past* Arabic *professor in the University of* Oxford, *and lately made* Hebrew *professor likewise, who, among his many eminent qualities, is universally esteemed a great master of the* Eastern *languages. This gentleman at my request generously undertook the province of strictly collating the two* Latin *versions above-mentioned with the* Arabic *copy, in my presence; and out of them he compiled this, which*

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which I now give to the public; and doubtleſs he would have made it much better, had the Arabic *copy been more correct.*

London, Sept.
29, 1747.

A

DISCOURSE

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CHAP. I.

Of the origin of the ſmall pox.

BEFORE I enter on the medical part of my ſubject, I ſhall briefly enquire into the origin of the ſmall pox, and the manner of its propagation from thoſe countries, where it firſt appeared, almoſt over the whole face of the earth, as far as I can trace it in hiſtory: for theſe points once ſettled

will throw a conſiderable light on the nature of the diſtemper, and the methods of cure, which I ſhall propoſe in the ſequel of the *Diſcourſe*.

THAT this is a modern diſeaſe, whereby I mean, that it was not known to the ancient *Greek* and *Roman* phyſicians, is to me a matter beyond all doubt. For I think they are widely miſtaken, who endeavour to prove, that the *anthrax*, *epinyctis*, and ſuch like eruptions on the ſkin, were our *ſmall pox*: becauſe it is more than probable, that the ancient phyſicians, who were extremely diligent in the deſcription and diſtinctive characteriſtics of all diſeaſes, would not have been content with barely mentioning this, which is ſo contagious, and makes ſuch dreadful havock among mankind; but would have minutely deſcribed it, had they been acquainted with it.

WHERE-

WHEREFORE we muſt have recourſe to the writings of the *Arabian* phyſicians for the firſt notices of this diſeaſe. The chief of theſe was *Rhazes*, who lived about the year of Chriſt DCCCC. We have a large volume of this great man, publiſhed under the title of his *Continent*, a treaſure of phyſic, which ſeems to have been compiled from his common-place book. In this he informs us, that a phyſician, whoſe name was *Aaron* (who wrote thirty books of phyſic) had treated of the diagnoſtics, the various kinds, and the method of cure of the ſmall pox [1]. Now this *Aaron* was born at *Alexandria*, and in the reign of *Mohammed* practiſed about the year DCXXII [2]. Whence the learned Dr. *Freind* conjectured, that *poſſibly the ſmall pox took its riſe in* Egypt [3]. But the ori-

[1] *Contin.* 419. 2.
[2] V. *Abulpharajii hiſt. Dynaſt. p.* 99.
[3] *Oper. p.* 330.

gin of the diſeaſe is carried farther back than the time of this *Aaron*, by Dr. *John James Reiſke*, who ſays that he read the following words in an old *Arabic* manuſcript of the public library at *Leyden*: *This year in fine the ſmall pox and meaſles made their firſt appearance in Arabia* [1]. By *this year* he means that of the birth of *Mohammed*, which was the year of *Chriſt* DLXXII.

Now upon mature conſideration of the whole affair, I am inclined to think that there are certain diſeaſes, which are originally engendered and propagated in certain countries, as in their native ſoil. Theſe by *Hippocrates* are called *diſeaſes of the country* [2]; and ſome of them, ſprung up in various parts of *Europe* and *Aſia*, from peculiar

[1] Hoc demum anno comparuerunt primum in terris Arabum variolae et morbilli. *Diſp. inaug. Lug. Bat.* 1746.

[2] Νοσήματα ἐπιχώρια.

defects

defects in the air, ſoil, and waters, he has moſt accurately deſcribed [1]: but the more modern *Greeks* call them *endemic diſeaſes* [2]. Theſe, in my opinion, always exiſted in their reſpective native places, as proceeding from the ſame natural cauſes perpetually exerting themſelves.

It is found by experience, that ſome of theſe are contagious, and that the contagion is frequently propagated to very remote countries by means ſuitable to the nature of this or that diſeaſe. For ſome not only communicate the infection by immediate contact of the ſound with the morbid body, but have ſuch force, that they ſpread their pernicious ſeeds by emitting very ſubtile particles; which lighting on ſoft ſpongy ſubſtances, ſuch as cotton, wool, raw ſilk, and cloathing,

[1] *Lib. De aëre, aquis, et locis.*

[2] Ἐνδημίαι. Vid. *Galen. Com.* i. *in Epidem. Hip.*

penetrate into them, and there remain pent up for a conſiderable time: in the ſame manner as I have elſewhere accounted for the wide progreſs of the plague from *Africa* its original country [1]. Others, on the contrary, are infectious by contact alone. Wherefore the firſt ſort may be ſpread by commerce, but the latter by cohabitation only.

Of this kind is the venereal diſeaſe; which, according to hiſtorians of the moſt undoubted credit, is a native of ſome of the *American* iſlands, eſpecially *Hiſpaniola*, and was brought over into *Spain* near the end of the fifteenth century: thence, in the year MCCCCXCV, it was carried to *Naples*, during the war between *Ferdinand* of *Aragon* and the *French*, by ſome *Spaniſh* troops, who had contracted it in the afore-

[1] *Diſcourſe on the plague, Part* i. *chap.* 1. | *pag.* 21. *edit.* 1744.

ſaid

ſaid iſland. For theſe and the *French* ſoldiers having at different times had communication with the ſame women, according as the ſame towns alternately fell into the hands of the two contending parties; this filthy diſeaſe firſt ſpread itſelf over the two armies, thence made its way into *Italy*, and has ſince infected moſt parts of the habitable world [1].

And I very well remember, that a certain *Engliſh* merchant, who had reſided many years in *Moſcovy*, aſſured me, that the venereal diſeaſe was hardly known in that country before the reign of the late Czar *Peter the Great:* becauſe till that time the traffick carried on by the *Moſcovites* did not require much communication or dealing with foreigners. But after that emperor had taken the reſolution of viſiting

[1] Vid. *Aſtruc De morbis venereis, Lib.* i. *cap.* 10, 11.

other parts of *Europe*, and had ſent many of his ſubjects abroad to learn trades and manufactures; theſe carried back with them the dire effects of their unlawful luſt into their native country: which raged there with the greater ſeverity, as inflammations and ulcers are the more difficult to be cured in cold climates.

But to return to the ſmall pox. I really take this diſeaſe to be a plague of its own kind, which was originally bred in *Africa*, and more eſpecially in *Ethiopia*, as the heat is exceſſive there; and thence, like the true plague, was brought into *Arabia* and *Egypt*, after the manner above-mentioned.

Now if any one ſhould wonder why this contagion was ſo long confined to its native ſoil, without ſpreading into diſtant countries; I pray him to conſider, that foreign commerce

commerce was much more ſparingly carried on in ancient times, than in our days, eſpecially between mediterranean nations: and likewiſe that the ancients ſeldom or never undertook long voyages by ſea, as we do. And *Ludolfus* obſerves, that the *Ethiopians* in particular *were ignorant of mercantile affairs*[1]. Therefore, when in proceſs of time the mutual intercourſe of different nations became more frequent by wars, trade, and other cauſes; this contagious diſeaſe was ſpread far and wide. But towards the end of the eleventh century, and in the begining of the twelfth, it gained vaſt ground by means of the wars waged by a confederacy of the *Chriſtian* powers againſt the *Saracens*, for the recovery of the *Holy land*; this being the only viſible recompence of their religious expe-

[1] *Hiſt. Aethiop. Lib.* iv. *cap.* vii.

ditions,

ditions which they brought back to their reſpective countries. From that time forward, whereſoever this moſt infectious diſtemper once got a footing, there it has obſtinately held uninterrupted poſſeſſion. For the purulent matter, which runs out of the puſtules, being caught in the bed-cloaths and wearing apparel of the ſick, and there drying and remaining inviſible, becomes a nurſery of the diſeaſe, which ſoon breaks forth on thoſe, who happen to come in contact with it; eſpecially if the ſeaſon of the year, and ſtate of the air, be favourable to its action.

In this place it may not be improper, in confirmation of the foregoing doctrine, to relate the following fact, which was atteſted to me by a gentleman of great experience, who had been for many years governor

vernor of *Fort St. George* in the *Eaſt-Indies.* While he was in that poſt, a *Dutch* ſhip put into the *Cape of Good Hope*, ſome of the crew of which had had the ſmall pox in the voyage thither. The natives of that country, who are called *Hottentots*, are ſo wild and ſtupid, that they might ſeem to be of a middle ſpecies between men and brutes; and it is their cuſtom to do all ſervile offices for the ſailors, who land there. Now it happened, that ſome of theſe miſerable wretches were employed in waſhing the linen and clothes of thoſe men, who had had the diſtemper: whereupon they were ſeized with it, and it raged among them with ſuch violence, that moſt of them periſhed under it. But as ſoon as fatal experience had convinced this ignorant people, that the diſeaſe was ſpread by contagion, it appeared that they had natural

tural ſagacity enough to defend themſelves. For they contrived to draw lines round the infected part of their country, which were ſo ſtrictly guarded, that if any perſon attempted to break through them, in order to fly from the infection, he was immediately ſhot dead. Now this fact ſeems the more remarkable, as it evinces, that neceſſity compelled a people of the moſt groſs ignorance and ſtupidity to take the ſame meaſure, which a chain of reaſoning led us formerly to propoſe, in order to ſtop the progreſs of the plague[1]; and which, ſome time after, had a happy effect not only in checking, but even entirely extinguiſhing that dreadful calamity in *France*, where it broke forth, and threatened the reſt of *Europe* with deſtruction.

[1] *Diſcourſe on the plague, Part* ii. *chap.* 2. *p.* 109.

CHAP.

CHAP. II.

Of the nature and ſorts of the ſmall pox.

HAVING ſufficiently proved in the preceding chapter, that the ſmall pox is a diſeaſe of the peſtilential tribe; in order to a clearer knowledge of its nature, I will briefly premiſe my notions of peſtilence.

ALL fevers, which attack the whole body, may be conveniently ranged under the three general heads of *ſimple*, *putrid*, and *peſtilential*.

SIMPLE fevers ariſe from a long-continued exceſs of velocity in the motion of the blood, and its conſequences, a diſturbance of its due mixture,

mixture, and an interruption of the ſecretion of the humours in the ſeveral parts of the body.

Putrid fevers are cauſed, when, together with a concurrence of theſe circumſtances, a lentor enſues in the capillary blood-veſſels; and as this ſizy blood is gradually puſhed forward by the force of the circulation into the veins, it there becomes putrid, and impregnates the reſt of the maſs with a malignant quality, which is communicated both to the internal and external parts of the body.

Peſtilential fevers infine I call all thoſe, which are accompanied with ſome ſort of poiſon. Now of whatever nature this happen to be, it not only infects and corrupts the blood, but more particularly ſeizes on the ſubtile nervous liquor, which is called the animal ſpirits. Hence it is, that theſe fevers act with greater

rapidity and violence, and are much more fatal than the other ſorts. But this one circumſtance is common to all fevers, that nature endeavours to conquer the diſeaſe, by raiſing ſome ſtruggle or other, in order to throw forth from the body whatever is prejudicial to life.

Now, whereas the word *Nature* is made uſe of by phyſicians in the cure of all diſeaſes, I will here, once for all, plainly declare my ſentiments of what we ought to underſtand by that word. That there is ſomething within us, which perceives, thinks, and reaſons, is manifeſt beyond contradiction; and yet the nature of that *ſomething* cannot be fully and perfectly comprehended in this life. Wherefore I ſhall reſign the diſquiſition of this point to thoſe, who, while they know too little of, and care leſs for things falling under their ſenſes, take great

pleaſure

pleaſure in inveſtigating thoſe things, which human reaſon is incapable of conceiving. However, thus far the ſoundeſt philoſophers agree concerning it, that it is ſomewhat incorporeal. For how can ſluggiſh matter, which is of itſelf void of all motion, be the ſource and firſt cauſe of thought, the moſt excellent of all motions? Wherefore it is ſufficiently evident, that this firſt mover within us is a ſpirit of ſome kind or other, intirely different and ſeparable from terreſtrial matter, and yet moſt intimately united with our body.

MOREOVER, to me it ſeems probable, that this active principle is not of the ſame ſort in all; that the almighty creator has endowed man with one ſort, and brutes with another: that the former ſo far partakes of a divine nature, as to be able

able to exiſt and think after its ſeparation from the body; but that the latter is of ſuch an inferior order, as to periſh with the body. The former was by ſome of the ancients called *animus*, the latter *anima*[1]; and they believed, that they were both ingendered in our ſpecies: but this I take to be an erroneous poſition. For as their *anima* ſuffices for the functions of life in brutes, ſo our *animus* ſtands not in need of ſuch an aſſiſtant. Now this matter, if I am not miſtaken, ſtands thus: ſuch is the compoſition of our fabrick, that when any thing pernicious has got footing within the body; the governing mind gives ſuch an impulſe to thoſe inſtruments of motion, the animal ſpirits, as to

[1] *Juv.* Sat. xv. 148.

Mundi
Principio indulſit communis conditor illis
Tantum animam, *nobis* animum *quoque.*

Vide etiam *Daviſii Not. ad Ciceron. Tuſc. diſput. Lib.* i. *cap.* 10.

raiſe thoſe commotions in the blood and humors, which may relieve the whole frame from the danger, in which it is involved. And this is done in ſo ſudden a manner, that it ſhould ſeem to be the effect of inſtinct, rather than voluntary motion; though it be effected in us at the command of the *animus*, and in brutes by the power of the *anima*. And indeed, thoſe very motions, which are commonly called natural and vital, as thoſe of the heart, lungs, and inteſtines, which perſevere through the whole courſe of life, even when the will cannot be concerned in them; as they have their beginning from the mind, ſo they are perpetually under its direction. I could eaſily bring many arguments in confirmation of theſe ſentiments, but they would be ſuperfluous in this place. Beſides that I am happily anticipated by the learned

learned and ingenious Dr. *Porterfield*, fellow of the royal college of phyſicians at *Edinburgh*, who in a curious *Diſſertation* publiſhed ſome years ſince [1], has treated this ſubject with ſuch perſpicuity, that there can be no room left for doubt.

BUT from philoſophy I return to medicine. Our ſagacious *Sydenham* was ſo far of this opinion, as to aſſert, that *a diſeaſe is nothing elſe but an effort of nature to throw off the morbific matter, for the health of the patient* [2]. And *Hippocrates*, in his uſual manner, laconically expreſſed the ſame thing thus: *Nature* is *the curer of diſeaſes* [3]. Now this I have obſerved more particularly in peſtilential fevers, in which the violence

[1] Vid. *Medical Eſſays publiſhed at Edinburgh*, *Vol.* iii. *Eſſay* xii. and *Vol.* iv. *Eſſay* xiv.

[2] Obſervation. medic. circa morborum acutorum hiſtoriam, *at the beginning*.

[3] Νόσων Φύσιες ἰητροί. *Epidem. Lib.* vi.

of the diſtemper breaks forth on the ſkin in the form of puſtules, carbuncles, and bubo's; all which are the very venom of the diſeaſe, as the common experiment of giving the ſmall pox by inoculation plainly demonſtrates. Thus having made it appear, that the ſmall pox is an envenomed fever, I come to explain its different ſorts: for as to its hiſtory, I refer to Dr. *Sydenham*, who was the firſt that divided its whole courſe into certain ſtages, and gave the method of cure in each.

Most authors divide the *ſmall pox* into the *diſtinct* and *confluent* ſorts, and eſtimate both ſorts by the ſize, number, and manner of eruption of the puſtules. But in the prognoſtic they make ſo wide a difference between them, that they pronounce the former ſort to be almoſt void of all danger, but the latter

latter always dreadful in its conſequences. Thus much indeed is moſt certain, that the *confluent ſort* are, generally ſpeaking, much worſe than the *diſtinct*, and that many more die of thoſe than of theſe. But yet it ſometimes happens, that a *diſtinct ſort* may prove more dangerous than the common *confluent ſort*. Moreover, there are many ſymptoms extremely dangerous, which are peculiar to the *diſtinct* kind, as I ſhall ſhew anon. For the danger does not ſo much ariſe from the quantity of the purulent matter, as from other circumſtances, which ſhall be explained in their due place.

WHEREFORE, in my opinion, the *ſmall pox* may more accurately, and, agreeably to the nature of the diſeaſe, be divided into *ſimple* and *malignant*.

I CALL *ſimple* all that ſort, in which the eruption is attended with a ſlight fever of ſhort duration, the puſtules fill kindly, make good matter in a few days, and in fine fall off in dry ſcabs.

THE *malignant* ſort is that, in which the eruption appears with a malignant fever, the puſtules hardly come to any tolerable degree of maturity, and either ſuppurate not at all, or if they do in ſome meaſure, as the fever is never off, 'tis with great trouble that they at length end in little cruſts.

THAT malignity appears in ſuch various forms, according to the different nature of the puſtules, that its characteriſtic ſigns have given various appellations to the ſmall pox; whereof the chief differences, which have fallen under my obſervation, are theſe that follow. For the puſtules

are

are either *cryſtallin*, *warty*, or *bloody*. I am well aware, that authors have run into a greater number of ſubdiviſions; but I look on the reſt to be either a combination of ſome or all of theſe, or only different degrees of the ſame kind: a thing which frequently happens in an irregular diſeaſe.

I CALL thoſe puſtules *cryſtallin*, which, inſtead of thick, well digeſted matter, contain nothing but a thin, pale water, and are in ſome meaſure pellucid. And this ſort is ſometimes obſerved, not only in the *confluent*, but alſo in the *diſtinct* ſmall pox.

THEY are called *warty*, when the puſtules contain no fluid, but grow hard and prominent above the ſkin, in the manner of warts. Theſe are peculiar to the *diſtinct* ſort.

THE *bloody* puſtules are produced more ways than one. For I have ſeen caſes, where, at the very beginning of the diſeaſe, the puſtules were ſo many ſmall tubercles full of blackiſh blood, reſembling thoſe raiſed on the skin, when pinched with a forceps. And theſe were followed by an intermixture of purple and livid ſpots, ſuch as phyſicians deſcribe in the true plague. But it more frequently happens, that puſtules coming out very thick, on the third or fourth day after, when they ought to fill, become livid, and a little bloody, with black ſpots ſpread over the whole body; which forebode death in a day or two, becauſe they are real gangrenes. It very often falls out at this time, that a thin blood flows not only out of the patient's mouth, noſe, and eyes, but alſo by every outlet of the body; but more eſpecially by the

the urinary paſſages, through which it likewiſe iſſues ſometimes on the firſt days of the diſtemper. Theſe are manifeſtly of the *confluent* ſort.

To theſe Dr. *Freind*[1] has added a fourth kind of ſmall pox, which he calls *ſiliquoſe*, in which the puſtules reſemble little round, ſoft, hollow bladders, and contain no fluid. But this I place among the *cryſtallin* ſort, the only difference between them being, that in this caſe one part of the fluid, which had been thrown into the puſtules, flies off through the ſkin, and the other is abſorbed by the lymphatics back into the body.

It is always a difficult task, and ſometimes a needleſs one, to inveſtigate the true cauſes of things. But as the public may perhaps expect, that I ſhould account for the

[1] *Epiſt. De quibuſdam variolarum generibus.*

above-

above-mentioned differences in this diſeaſe; I ſhall ſay, that the principal reaſons of theſe differences, which have occurred to me upon mature conſideration, are, the almoſt infinite variety of *temperaments* in various individuals; the *ſeaſons of the year* and their changes, and infine *many accidents* which befall the body, between the time of catching the infection, and the appearance of the diſeaſe. For inoculation ſhews, that the ſmall pox does not break forth before the eighth or ninth day from receiving the infection.

POSSIBLY it may be thought ſtrange, that in enumerating theſe cauſes I have not mentioned a word of the nature of the infecting particles. But beſides that the knowledge of this is not attainable by us, it ſeems to have no great influence

on the production of this or that particular ſort of the diſtemper. For we frequently obſerve in the ſame family, where one perſon catches it from another, that ſome have a favourable, and others a bad ſort.

But ſuch is the power of *temperaments* of body, that they deſcend to thoſe of the ſame blood by a ſort of hereditary right: whence ſome diſeaſes are found to be familiar and fatal to certain families.

As to the *ſeaſons of the year*, we find by daily experience, that ſome of them are fitter to produce certain diſeaſes than others; that they are the cauſes of epidemic fevers; and that thoſe chiefly, in which ſome fluid is to be thrown off by the skin, are the moſt remarkably liable to be affected by their changes.

But

But numberleſs are the things comprehended in the third article, to wit, all thoſe accidents, which happen to the body from the time of taking the infection to the eruption of the puſtules. For the poiſon is far from lying quiet all this while, but is conſtantly and gradually exerting its malignity, by firſt corrupting the animal ſpirits, and then the whole maſs of blood and humors. Wherefore if bodily exerciſe, diet, or the affections of the mind (which havegreat power in this caſe) ſhould happen to make any particular alteration in the fermenting fluids; they may eaſily occaſion various ſorts of puſtules, poſſibly in the manner I am going to explain.

The *ſimple* ſmall pox are ſuppurations made, while the blood is not ſo far vitiated, but that the derivations

tions of the humors into the proper parts may be effected tolerably well, and the natural functions are not entirely hurt. But in the *malignant* ſort the caſe is quite different. For the whole maſs of humors is corrupted more or leſs, according to the nature of the diſeaſe; and the blood is in ſuch confuſion, that the purulent matter cannot be thrown upon the skin. Now in this caſe, ſometimes a thin fluid is thrown out, which, when watery, makes *cryſtallin* puſtules; when thick and viſcid, *warty*; and *ſiliquoſe* in fine, when the fluid has been reſorbed by the lymphatics into the blood, and has left the puſtules quite empty. Beſides, the texture of the blood is too frequently broken to that degree, that it is obſtructed, and ſtagnates in the ſmall veſſels: whereupon the skin is ſtrewed with

black

black ſpots, which are ſo many real gangrenes, and hemorrhages enſue through all the outlets of the body; whence this is called the *bloody* ſort. That theſe horrid ſymptoms are the effects of an acrid poiſon, appears plainly, becauſe the ſame happen to thoſe, who have been bit by the *Hæmorrhois*, a *Libyan* ſerpent, according to *Lucan's* beautiful deſcription:

A fierce Hæmorrhois *ſtruck both his fangs*
Deep into Tullus; *a brave valiant youth,*
And fond admirer of great Cato's *worth.*
And as Corycian *ſaffron, when 'tis ſqueez'd,*
Pours forth its yellow juice thro' all the holes
Of the hard preſſing boards; ſo from the pores
Of all the parts flow'd ruddy venom'd gore.
His tears were bloody; nature's paſſages,
For their own humors, were all fill'd with blood.
His mouth, his noſe, choak'd up with filthy clots:

Red

Red ſweats tranſpir'd from all the ſkin inflamed.
His body ſeem'd one univerſal wound [1].

But from theſe objects of terror, it is time to paſs to thoſe, which may afford comfort.

[1] *Lib.* ix. ℣ 806.

CHAP.

CHAP. III.

Of the methods of cure in the ſmall pox.

IT is moſt evident, that all peſtilential diſeaſes are accompanied with the higheſt inflammation of the blood and humors, and therefore they all require emptying and cooling. I begin with the *ſimple* ſmall pox, and ſhall afterwards deſcend to the treatment of the *malignant* ſort, in its ſeveral varieties.

BUT in this place it ſeems proper to clear up two material points. The one regards the management of the ſick, and the other, the diet proper for him.

WITH reſpect to the firſt, ſerious attention ſhould be given both to the

the ſeaſon of the year, and to the ſtrength of the patient. For the ſame things, that are done with ſafety in ſummer, may be attended with danger in winter; and young lads or robuſt men eaſily bear what might deſtroy infants, or weakly women. But let this be a general rule, to keep the patient in bed during the firſt days of the diſtemper, taking care to defend him from the inclemency of the winter by proper means, and to moderate the exceſſive heat in ſummer by cool air. But to chill, and as it were to freeze up the ſick in winter, is not the part of a prudent phyſician, but that of a fool-hardy empiric, trying experiments at the expence of unhappy people's lives. Wherefore a mean is to be obſerved herein, by managing the patient in ſuch a manner, as neither to ſtifle him with heat or cloaths, nor check the eruption and

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perſpiration by cold. However, great care ought to be taken in general, to ſupply him with pure and cool air, which he may take in plentifully: becauſe a hot air cauſes difficulty of breathing, checks the ſecretion of urine, and increaſes the number of puſtules on the internal organs of the body; the conſequences whereof we may juſtly apprehend to be inflammations, and, towards the end of the diſeaſe, gangrenes.

With regard to diet, it ought to be very ſlender, moiſtening, and cooling; ſuch as *oatmeal or barly gruel, &c.* Nevertheleſs, as the food is to be adapted to the ſeveral ſtages of the diſeaſe, the beſt regimen in the beginning is that, which will keep the body open, and promote urine. Theſe advantages are obtained by boiling preſerved fruits with

with their food, eſpecially *figs*, *damaſcene plums*, and *tamarinds*; and giving them ſubacid liquors for drink; *as ſmall beer acidulated with orange or lemon juice*; *whey turned with apples boiled in the milk, or with wine*; *emulſions made with barly water and almonds*; *Moſelle or Rheniſh wine plentifully diluted with water*; or any other things of this kind.

When this ſort of diet did not keep the body open, the *Arabian* phyſicians added *manna* to it; but this they did ſparingly, and with caution. *For it is quite neceſſary*, ſays *Avicen*, *that the body be open in the beginning* [1]. Which is one of the moſt important advices, that can be given in this diſeaſe, if to it be added, that urine muſt be made plen-

[1] *De variolis et morbillis.*

tifully. For there is a wonderful correſpondence between the ſkin and the kidneys; whereby whatever fluid is wont to be ſecreted by the cuticular glands, may with great eaſe be evacuated by the urinary paſſages. Wherefore it is very proper to draw off as much of the matter of the diſeaſe, as can be done, by theſe paſſages; in order to prevent the overloading of the internal parts.

Now let us paſs on to medicines, and in the firſt place *blood-letting* is neceſſary. But as diſſentions frequently ariſe on this ſubject, ſome rules are to be laid down concerning it.

It is agreed on all hands, that this remedy is not very ſuitable to the tendereſt age. But yet, as the blood of infants is generally too thick, and too much in quantity for the bulk of the body; and as they

they are oft-times ſeized with convulſions, upon the appearance of the diſeaſe, ſome evacuation ought to be made: which may be ſafely effected by leeches applied to the temples, or behind the ears. Likewiſe, if blood cannot be drawn from the arm, in moſt young ſubjects either of the jugulars may be opened without inconvenience.

THAT regard is to be had to the patient's ſtrength, of what age ſoever, is manifeſt to all. But the weakneſs is ſeldom ſo great, as not to bear ſome loſs of blood, unleſs it be after ſome extraordinary evacuations. Nor is the pulſe to be over-much depended on in this caſe: for it often happens, that the thickneſs of the blood prevents the ſecretion of the uſual quantity of animal ſpirits in the brain, and that the vital fluid is not propelled from the

heart with due force: in which caſe, by removing the oppreſſion, the patient's ſtrength is obſerved even to increaſe with the bleeding.

But in what proportion blood is to be taken away, will be beſt determined by the vehemence of the diſeaſe. Many of our phyſicians imagine that they have done their duty, when they have ordered one bleeding, and are vaſtly cautious of opening a vein at all, after the firſt appearance of the puſtules; for fear of checking the eruption. But this is certainly an ill-timed caution: for in youths and adults it is often neceſſary to draw blood two or three times, only with an intermiſſion of two or three days between each time. And indeed blood-letting is ſo far from being an obſtacle to the eruption of the puſtules, if the patient be not too weak, that it forwards it conſiderably; and for the very ſame reaſon

reaſon, that, in large abſceſſes, when there is too great a fullneſs, and the heat too intenſe, the ſuppuration is brought on quicker and better by taking away ſome blood.

I HAVE often obſerved, when in the beginning a vaſt number of ſmall puſtules foreboded a diſeaſe of the worſt kind, that the face of affairs was ſo remarkably changed upon one or two bleedings, that the puſtules increaſed in ſize, and diminiſhed in number (the greatneſs of the diſeaſe thus giving way to the greatneſs of the remedy) by which means nature acquired ſufficient ſtrength to expel the noxious humor. For it is moſt certainly true, that nature labours at the expulſion of the poiſon in the moſt perfect manner, that is, endeavours to make the puſtules fill up as much as poſſible; and for that end ſhe requires

every thing to be quiet within the body, and always abhors confuſion. And indeed, the reaſon why the *confluent* ſmall pox is worſe than the *diſtinct* ſort is not, becauſe the matter of the diſeaſe is more abundant in the former than the latter, but becauſe it is not puſhed out in a proper manner. For upon a ſtrict examination we generally find, that the greater quantity is diſcharged in the *diſtinct* ſort.

Now to conclude this head, ſuch is the benefit of large and reiterated bleeding, that it is obſerved to prevent thoſe evils, which often attend the diſeaſe; as a *delirium*, convulſions, difficulty of breathing, and the like. For the diſſection of dead bodies ſhews, that the infection is not confined to the external parts of the body, but ſeizes on the internal parts alſo. For I myſelf have

ſeen ſubjects, in which the lungs, brain, liver, and inteſtines were thick beſet with puſtules. Nor have I the leaſt doubt, but that thoſe ſudden deaths, which ſometimes happen towards the end of the diſeaſe, when there ſeemed to be no room left for fear, are occaſioned by the efflux of the purulent matter from the burſted puſtules on one or other of the nobler parts. Wherefore no fever is attended with more uncertain ſigns, on which to ground a ſure prognoſtic, than this, of which we are treating. Upon the whole, there is no time of the diſeaſe, wherein it may not be neceſſary to draw blood; if the violence of the fever require it, and the patient appear able to bear it. For it is always beter to try a doubtful remedy than none.

A *phrenzy*

A *phrenzy* coming on the fourth day of the eruption, is juſtly eſteemed of very bad omen; inſomuch that Dr. *Freind* ſays, that *he never ſaw a patient recover, who had had this ſymptom* [1]. But I can poſitively declare, that I have had better fortune; having recovered many, who had been ſeized with a *delirium* at that time, by drawing blood immediately, and then throwing in a clyſter.

After taking away as much blood as is requiſite, it is proper to purge the body: which may be done with ſafety enough any time before the eruption of the puſtules. But the purge muſt be of the gentle kind; ſuch as *the infuſion of ſena with manna*, or *manna* alone, eſpecially for children. For no diſturbance is to be raiſed in the body.

[1] *Epiſt. De quibuſdam variolarum generibus.*

But

But firſt a vomit ſhould be given, if there happens to be any collection of phlegm or bile in the ſtomach, or the ſtomach to be loaded with food unſeaſonably taken.

As ſoon as it is certain, that the eruption is near at hand, moſt phyſicians are of opinion, that it ought to be promoted by all means. Yet we are to remember, that this is the proper work of nature: and therefore great care ſhould be taken, neither to increaſe the motion of the blood over-much, nor ſuffer it to grow languid.

It was a wiſe ſaying of *Aſclepiades, that he made uſe of the fever for its own cure*[1]: whereby he meant, that the fever is to be regulated in ſuch a manner, that itſelf may throw off whatever is noxious to the body.

[1] *Celſ. Lib.* iii. *cap.* 4.

Where-

Wherefore the true intention in this caſe is, to keep the inflammation of the blood within due bounds, and at the ſame time to aſſiſt the expulſion of the morbific matter through the ſkin. For both which purpoſes a medicine, which I have experienced to be uſeful, is a powder compoſed of two parts of the *bezoardic powder*, and one part of *purified nitre*; and ſometimes of equal parts of both. An adult may take half a drachm of this powder three or four times in a day, diminiſhing the quantity for children, in proportion to their age. And if the efferveſcence of the blood run very high, a proper quantity of *ſpirit of vitriol* may be added to the patient's drink. But if there be any keckings or reachings to vomit, they will be removed by draughts containing half an ounce of *juice of lemons*,

lemons, with one ſcruple of *ſalt of wormwood.*

Now, concerning thoſe medicines, which eaſe pain, and procure ſleep, in this ſevere diſeaſe; theſe are not to be uſed over-haſtily: for all *anodynes* in ſome meaſure obſtruct the ſeparation of the morbid humor from the blood, unleſs the pain happens to be exceſſive: and moreover, if the violence of the fever has raiſed a *delirium*, they generally make it worſe. Wherefore it is not proper to employ them, until the eruption of the puſtules be compleated: but after that, narcotics may be adminiſtered with ſafety. Thus it will be right to give the patient a doſe of the *thebaic tincture*, or *diacodion*, every evening, eſpecially if he be a youth or an adult perſon: for theſe medicines agree not ſo well with infants.

ſants. And ſometimes, in caſes of very great inquietude, the doſe is to be repeated in the morning. For the ſuppuration of the matter ſtagnating in the puſtules is forwarded by quiet and ſleep. But if, towards the end of the diſeaſe, the patient happens to be ſeized with a ſhortneſs of breath, or danger of choaking from viſcid ſlime, theſe medicines are to be entirely prohibited. In the mean time, if the patient is coſtive, which is generally the caſe, and the fever continues; the body is to be opened with a clyſter every ſecond or third day.

It may be needleſs to obſerve, that, if this method is proper in the *diſtinct* ſmall pox; it will be found more neceſſary ſtill in the *confluent*, which is attended with greater fear and danger.

FROM the *ſimple* I now paſs to the *malignant* ſmall pox, of which I have already eſtabliſhed three ſorts, to wit, the *cryſtallin*, the *warty*, and the *bloody*.

Now, this obſervation holds good in all kinds of the diſeaſe, that the more the puſtules tend to ſuppuration, the greater are the hopes of recovery; and therefore when that does not go on according to our wiſhes, all poſſible means are to be employed, to throw the morbific humor on the ſkin. With which intention every thing is to be done in this caſe, which we have propoſed in treating of the *ſimple* ſort. But yet each ſpecies of the *malignant* ſort requires a peculiar conſideration.

WHEREAS in the *cryſtallin* ſort the water of the puſtules can never be brought to a laudable ſuppuration;

tion; it ought to be carried off by thoſe paſſages in the body, which are naturally adapted to the ſecretion of the thinner fluids. Now I have ſaid above, that there is a great correſpondence between the skin and the kidneys. Therefore while the thinneſt parts of this water are made to tranſpire through the skin; the groſſer parts ought to be drawn off through the urinary paſſages, by diuretic medicines. Of this tribe there is nothing better than *nitre*, and that may be adminiſtered three or four times a day, in ſuch quantities as may not offend the ſtomach, to wit, a ſcruple or half a drachm, diſſolved in *ſmall wine*, which is the only ſort that agrees with this diſeaſe, till towards the end; when it may be proper to allow the patient a little *Canary* (Dr. *Sydenham's* favourite liquor) or any other ſoft and generous wine, to ſupport his ſtrength. But

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while *nitre* is thus taken, it will be right to interpoſe thoſe medicines, which cheriſh the heart, and promote the flux of the humor into the puſtules: ſuch as *Raleigh's cordial* or the *cordial confection*; the *bezoardic powder*, ſometimes with a little *ſaffron*; and the *plain ſpirit of hartſhorn*. Beſides theſe, on the fifth or ſixth day of the eruption, *bliſters* are to be applied between the ſhoulders, and to the arms and legs: for which purpoſe the *bliſtering epithem* is moſt convenient, as its ſoft conſiſtence enables it to reach the ſkin between the puſtules, and ſtick to it. For by this diſcharge of the ſeroſities, the fever, which increaſes, when there is no farther derivation of humors to the ſkin, is ſeaſonably prevented.

I KNOW indeed, that moſt of our phyſicians apply this remedy earlier,

and even on the firſt days of the diſeaſe, in every *malignant* ſmall pox: but there is juſt reaſon to fear, that the great commotion raiſed in the blood by the acrimony of the flies might be an obſtacle to the due propulſion of the humor into the beginning puſtules.

THE *warty* ſmall pox is more dangerous than the *cryſtallin*; becauſe the matter of the diſeaſe, being too thick, can neither ſuppurate, nor paſs off by urine. Wherefore it is neceſſary to uſe the utmoſt endeavours to take off the fever, and to provoke ſweat, in order to digeſt the morbid humor, by the cordial medicines aforementioned. And *bliſters* ought to be applied in this caſe likewiſe. But the Arabian phyſicians pronounced this ſort of the diſeaſe to be always fatal [1].

[1] *See* Rhazes's *treatiſe annexed, Chap.* viii.

LASTLY,

LASTLY, that ſort, which I have called the *bloody* ſmall pox, requires peculiar attention. Now in this ſort if there is any room for phyſic, thoſe medicines bid faireſt for ſucceſs, which by their ſtypticity thicken the blood in ſome meaſure, and ſo check it, that it cannot break thro' even the ſmalleſt arteries. The beſt of this kind are the *Peruvian bark*, *alum*, and that *ſpirit* which is called *oil of vitriol*. Now theſe are to be uſed alternately in this manner. A drachm of the *bark* may be given every ſixth hour; and, three hours after, a proper quantity of *alum*. It will be a very powerful medicine, if thus compounded. Melt three parts of *alum* on the fire, with one part of that inſpiſſated juice, which is improperly named *dragon's blood*: when the maſs is grown cold, reduce it to a powder; a ſcruple of which, made into a *bolus* with *con-*

ſerve of red roſes, will be a proper doſe. The moſt convenient manner of giving the *oil of vitriol*, is in the *tincture of roſes*; five or ſix ſpoonfuls whereof may be taken ſeveral times in the day. And beſides, the patient's common drink may be acidulated with it; eſpecially if purple or black ſpots appear interſperſed among the puſtules. And this medicine will be of great ſervice, not only in the *bloody*, but in all the other ſorts likewiſe, accompanied with theſe ſpots. This one thing more I will add, that I have experienced the uſe of *bliſters* to be ſafe enough in this caſe, when a *delirium* requires their application. I have indeed ſeen ſome patients recover by this method, who had diſcharged large quantities of blood by the urinary canal at the time of the eruption of the puſtules: but it is worthy of notice, that in all theſe

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the diſeaſe terminated in ſome conſiderable evil. For they were tortured, either with boils breaking out in many parts of the body, or with glandular ſwellings under the ears or arm-pits, which were not eaſily brought to ſuppuration. I likewiſe remember the caſe of a young man, one of whoſe tonſils was deſtroyed by a gangrenous ulcer, which was very troubleſome to cure. Thus upon the whole it is manifeſt, that it is extremely difficult to clear the maſs of blood of this poiſon; and that a perfect recovery is not to be procured without a ſuppuration, either in its due courſe of time, or in the laſt ſtage of the diſtemper.

But in every ſort of this diſeaſe, it is proper to open the body on the decline, that is on the ninth or tenth day from the eruption: becauſe a putrid fever generally comes on about

this time, while the puſtules are drying; or upon the ſubſidence of the ſwelling of the inflamed ſkin, where there is no ſuppuration: which fever cannot be taken off with equal ſafety by any other means. But gentle cathartics alone are to be employed in this caſe, ſuch as I have adviſed before the eruption of the puſtules.

THIS whole affair I formerly explained, and illuſtrated with proper examples, in my *Letter to Dr. Freind*[1]; and that gentleman likewiſe abundantly confirmed it afterwards, by the authorities of ancient and modern phyſicians. So that whoſoever refuſes his aſſent to this practice, muſt reſolve not to ſee at noonday. All fevers have their certain periods; and where the poiſonous mat-

[1] Vid. *Freind. Commentar.* vii. *ad Hippocrat. de morbis popularibus.* Et *Epiſt. de purgantibus in ſecunda variolarum febre adhibend.*

ter has once infected the humors, the putrid fuel of the diſeaſe can hardly be thrown out of the body early enough. And indeed, when this rule is not obſerved, we daily ſee the diſtemper followed immediately by a hectic fever, attended with a cough, ſpitting of purulent matter, ſhortneſs of breath, and other ſymptoms of the lungs being affected.

But I muſt obſerve in this place, that, however beneficial purging may be at this time; yet if the body happens to be too looſe, either from the natural ſtate of the inteſtines, or by frequent clyſters; this remedy becomes leſs neceſſary, or at leaſt may be poſtponed for ſome days. For great regard is to be paid to the patient's ſtrength, which the length of the illneſs has more or leſs impaired.

MOREOVER, is is requiſite to be very circumſpect, whether there be any remains of the purulent matter lurking under the withered ſkin of the puſtules: for this is ſometimes ſo manifeſtly the caſe, that tho' the ſcabs appear dry and hard, yet upon ſome of them breaking here and there, there iſſues forth very fetid matter. In this circumſtance the body is not to be purged, but rather to be ſupported by proper diet, until the matter is all come away; which I have ſeen continue running to the twenty-fourth day of the diſeaſe, and yet the patient recovered. I ſhall never forget the caſe of a certain young man of a very robuſt conſtitution, who had ſo dreadful a ſort of the *confluent* ſmall pox; that when the puſtules ſhould have ripened, his whole face was become black and dry, and in ſhort thoroughly mortified. As the caſe

caſe ſeemed quite deſperate, I ordered inciſions to be made to the quick in many places, and fomentations of *a decoction of emollient and warm plants*, with the addition of *camphorated ſpirit of wine*, to be applied to the parts: whereupon there followed a diſcharge of matter from the inciſions of ſo offenſive a ſmell, that none of the attendants could bear to ſtay in the room: and having at the ſame time promoted this diſcharge by proper digeſtives, and duly purged him, he at length recovered. But his mangled face bore the laſting marks of the malignity of the diſtemper, and of the goodneſs of the cure.

In fine, it will be of uſe at this time to take away ſome blood, if the heat be too great, and the patient have ſtrength enough left to bear it.

Whoſo-

WHOSOEVER thoroughly conſiders all the circumſtances of this ſubject, which I have hitherto explained, muſt juſtly wonder, how the learned Dr. *Boerhaave* could be induced to hope, that ſome time or other, *a ſpecific antidote may be found againſt this contagious poiſon*[1]; that is, by which it may be ſo thoroughly deſtroyed, that though it had been received into the body, it may not produce the diſeaſe. But the principles and elements of things are ſo certain, and ſo well eſtabliſhed by the permanent laws of nature; that whoſoever would endeavour to change them, would act like thoſe philoſophers *by fire* (as they ſtile themſelves) who labour hard to tranſmute the baſer metals into gold; and when continual diſappointments have convinced them

[1] *Aphor. de cognoſcendis et curandis morbis*, 1390, 91, *et* 92.

of

of the vanity of their hopes, actually extract gold out of the purſes of the ignorant and credulous by the fumes of their charcoal.

THIS one obſervation I muſt add, that there is no ſpecies of fever, which requires the body to be thoroughly cleared of the remains of the diſeaſe, more than this. Wherefore upon the patient's recovery, blood is to be drawn, if his ſtrength will bear it; and cathartics are to be given ſeveral times at proper intervals. After which, the body is to be reſtored to its former ſtate by a courſe of milk, eſpecially that of aſſes, with ſuitable food, and the air and amuſements of the country.

I SHALL cloſe this long chapter with the account of a very malignant ſmall pox in a youth of fifteen years of age, communicated to me by my ſon-in-law, the learned and ingenious

ingenious Doctor *Wilmot*; who, from the fifth day of the diſeaſe, attended the patient jointly with Doctor *Connel*.

In the beginning of the fever preceding the eruption, the patient was directed to be let blood, and to take a vomit, and the next morning a gentle purge: the day following, the ſmall pox flushed out. The puſtules were very numerous and ſmall all over the body, looking more like a rank meaſles than the ſmall pox. As his fever ran very high, he was ordered draughts of *Gaſcoign's powder* with *nitre*, to be taken every ſix hours; and to drink plentifully of *barly water* acidulated with *ſpirit of vitriol*.

On the fourth day of the eruption, as he was very delirious, in order to procure ſleep, a paregoric of ſix drachms of *diacodion* was given

given him, which did not produce the effect.

THE fifth day, there was not the leaſt ſwelling of the face; his pulſe was quick and full, his heat intenſe, and the delirium not abated. Wherefore he was ordered another *bleeding*; the *nitroſe draughts* were continued, with the addition of five grains of *myrrh* to each; as likewiſe *barly water* with *ſpirit of vitriol*, and the *paregoric* as before.

THE ſeventh, the appearance of the diſeaſe was ſtill the ſame, with the addition of an oppreſſion of his breath, and a very troubleſome dry cough. *Diaſcordium* was added to his nitroſe draughts, and he was ordered a ſolution of *gum ammoniac* to be taken, a ſpoonful at a time, as occaſion required; and the *paregoric* continued.

THE

THE eighth, he complained much of a moſt acute pain in his head; his ſhortneſs of breath and cough were increaſed, his pulſe low, and there were no ſigns of ſuppuration; nor the leaſt ſwelling in the face or hands: but the ſkin of his face looked like a piece of parchment. Bliſters were ordered to be laid on his arms and legs, and plaſters, made of equal parts of the *cephalic* and *bliſtering plaſters*, to be wrapt round his feet: likewiſe draughts containing of *mithridate* half a drachm, and of *volatile ſalt of amber* half a ſcruple, to be takene very ſixth hour; and a gargle of *pectoral decoction*, and *oxymel* of ſquills.

THE tenth, as every thing was grown worſe, beſides continuing the ſame medicines, bliſters were ordered below the elbows.

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THE eleventh, his pulſe being much lower, and the patient much weaker, a mixture with *Raleigh's confection* was ordered to be taken often by ſpoonfuls, and the other cardiacs continued.

ON the twelfth, the pulſe being ſcarcely perceptible, and his breath oppreſſed to the laſt degree; when all hopes of ſucceſs were given up, a fit of coughing, in which he was almoſt ſuffocated, brought on a ſpitting of a limpid, fetid humor, equal in quantity to a ſalivation raiſed by mercury. And this flux continued twelve days without any apparent abatement: from thence it gradually diminiſhed for four days, when it ſtopped entirely.

BY the ſixteenth day, the diſeaſe together with that diſcharge had ſo far exhauſted him, that he was ſcarce

able

able to turn in his bed: and yet his ſpirits were ſo much better, that he could take plentifully of liquid nouriſhment. Whereby gathering ſtrength, his fever had now the appearance of a hectic only: for which he was ordered to loſe five ounces of blood, to take draughts of *lemon juice*, and *ſalt of wormwood*, with a little *ſperma ceti* diſſolved in them, every four hours, and to drink aſſes milk every morning.

By this method, with the repetition of *bleeding* to five ounces two or three times, and now and then purging him gently with *rhubarb*; together with *elixir of vitriol* in *Briſtol water*, and the country air, he in time happily recovered.

In this caſe we have a moſt remarkable inſtance of what I have already

already ſaid more than once, that is, how ſolicitous nature always is, at any rate to expel the poiſonous matter of this diſeaſe out of the body.

CHAP. IV.

Of accidents in the ſmall pox.

MANY ſymptoms and circumſtances attend the ſmall pox, which, as they neither commonly occur, nor ſeem to depend on the nature of the diſeaſe, either affright, or perplex the phyſician. Wherefore it may not be improper to make ſome remarks concerning them.

SOMETIMES the patient is ſeized with convulſions, juſt before the eruption. But this ſymptom is more terrifying than dangerous; and in children particularly, thoſe convulſions, which frequently come on before the diſtemper appears, are generally rather a good, than a bad ſign.

ſign. Now in this caſe, though it may ſeem ſtrange, *blood-letting* is to be carefully avoided; but a *bliſter* is to be applied to the neck, and to the ſoles of the feet *plaſters* made of equal parts of the *cephalic* and *bliſtering plaſters:* not forgetting at the ſame time to give thoſe medicines inwardly, which experience has ſhewn to be antiſpaſmodic. Of theſe the chief are, *wild Valerian root, Ruſſian caſtor,* and the *ſpirits and volatile ſalts, chemically extracted from animals.* For it has been frequently obſerved, that, upon drawing blood in this caſe, the diſeaſe ended fatally. I can aſſign no other reaſon for this event, but that thoſe involuntary motions are occaſioned by the patient's weakneſs; which is ſo increaſed by that evacuation, that nature becomes incapable of throwing out the morbid matter upon the ſkin. But the thing is otherwiſe in

adults, who, if not too weak, ought to loſe a moderate quantity of blood, and then be put into the foregoing method.

THE diſeaſe begins ſometimes in a different, and almoſt contrary manner. For the eruption appears without much fever or pain; for which reaſon there ſeems to be no danger. But that fond ſecurity is very frequently ill-grounded. For at the time when the puſtules ought to tend to maturity, as if nature were lazy, and not attending to her duty, there is no ſuppuration made: hence the fever increaſes, with inquietude of body, anxiety of mind, difficulty of breathing, and a *delirium*; which carry off the patient in a few days. In this ſtate, the fever ought rather to be raiſed than checked; and therefore warm medicines are to be directed, which

promote ſuppuration, by increaſing the motion of the blood, and thinning the humors: ſuch are the *Virginian ſnake-root*, the *Contrayerva root*, *ſaffron*, *aſa fœtida*, *myrrh*, and the like. But above all, *bliſters* muſt be laid on all the limbs. Such is the neceſſity of ſome evacuation or other in this diſeaſe, that if the matter of the infection be over-abundant, as it happens in bad caſes, nature never fails endeavouring to throw off the load. Thus in adults a ſpitting comes on upon the firſt days of the eruption; whereas children, who ſeldom ſpit, have a looſeneſs almoſt through the whole diſeaſe. Both theſe evacuations are of great importance, and therefore as the looſeneſs is not to be inconſiderately ſtopped in children; ſo in adults, if the ſpitting does not go on to our wiſhes, it ought to be promoted by medicines, which ſtimulate the glands of

the mouth; eſpecially *gargles* made of a decoction of *muſtard ſeed* and *pepper*, with the addition of *oxymel*. For in the *confluent* and *malignant* ſmall pox, if this flux does not ariſe, and even continue to the end of the diſeaſe, it is a very bad ſign.

SOMETIMES a ſuppreſſion of urine makes the patient ſuffer great pain, receiving little or no relief from diuretics. In this caſe Dr. *Sydenham* directed, that he ſhould be taken out of bed, and expoſed to the cool air: which generally has a good effect. But the moſt convenient method will be, to open the body by a *clyſter*, eſpecially if, the puſtules now appearing, there be any fear of taking cold; and then to inſiſt a little on diuretic medicines: for which purpoſe *Glauber's ſalt* is particularly uſeful, as it is both laxative and diuretic.

WHEN-

WHENEVER a woman with child is ſeized with the ſmall pox, the phyſician may juſtly dread the conſequences. For he has reaſon to fear a miſcarriage, which expoſes his patient to two ſorts of danger, the one from the new fever, which attends that accident; the other from the loſs of blood, which may bring her very low. And therefore the farther ſhe is advanced in her pregnancy, the greater riſque ſhe runs: becauſe the delivery of a large child cauſes a greater flooding than that of a ſmall one. I can however aſſert from my own knowledge, that a certain woman was delivered of a ſon at the full time, while ſhe was actually labouring under this diſeaſe; and yet both the mother and the child did well: but this is a caſe equally extraordinary and fortunate. But ſtill a good deal depends on the time of the diſeaſe, when the abortion hap-

pens: becauſe the weakneſs occaſioned thereby is the more dangerous, the more nearly it coincides with the time of the ripening of the puſtules. Wherefore if the efflux be more than nature uſually requires, thoſe medicines are to be given, which I have propoſed in the *bloody* ſmall pox.

Now, whereas theſe caſes fall out various ways, and phyſicians have been divided in opinion concerning ſome of them; it may not be improper to make ſome animadverſions on them ſeparately.

When a woman in the ſmall pox ſuffers abortion, the child moſt commonly comes into the world with the diſtemper on it; but not always. The reaſon of this difference will eaſily be underſtood, by duly conſidering what I have already ſaid concerning *infection*[1], and com-

[1] *Chap.* i.

paring

paring it with what I ſhall hereafter ſay concerning the *inoculation* of the ſmall pox[1]. Whereby it will plainly appear, that the ſeeds of the diſeaſe are ſubtile particles, exhaled from the puſtules come to maturity; which do not produce the effect, till eight or nine days after their entrance into a ſound body. Upon which account, when the child comes into the world, before matter is made in the puſtules on the mother, it has no viſible marks of the diſtemper. And thus it ſometimes happens, that the ſmall pox, which the infant has contracted in the womb, breaks forth on the ſecond, third, or any other day before the eighth from the delivery, whether the child be come to its full time, or not: as will appear by the following caſe, which lately fell under my own obſervation.

[1] *Chap.* v.

A LADY

A LADY of quality was, in the ſeventh month of her pregnancy, ſeized with ſo *malignant* a ſort of the *confluent* ſmall pox, that there was no appearance of any one favourable ſymptom. For ſhe neither ſpit plentifully; nor did the ſwelling of the hands or feet come on, upon that of the face ſubſiding; nor in fine was ſhe aſſiſted by a flux of urine on the decline of the diſeaſe: but on the contrary her face was all covered with ſmall pimples, which made little or no matter. In this condition, ſhe was, on the eleventh day of the diſtemper, pretty eaſily delivered of a ſon, who brought no marks of the infection into the world; and ſhe died on the fourteenth day. But in the morning of the fourth day following, the infant was ſeized with convulſions, the forerunners of the eruption, which appeared the ſame day, and he died in the even-

ing.

ing. In this caſe it is plain, that ſome ſuppuration having been made, as uſual, on the eleventh day; the diſtemper paſſed from the mother to the child, which was not to break out till eight days after.

But in caſe there is no miſcarriage, the child will be free from the diſeaſe during his whole life; unleſs he happens to be born, before the puſtules were come to maturity. For as ſomething naturally inherent in our conſtitution renders the body liable to the infection; ſo when this debt is once paid to nature, we are ſecure ever after. But the infant in the womb ſometimes catches the diſtemper, without the mother being affected; as I ſhall prove by this remarkable inſtance, which I well remember. A certain woman, who had formerly had the ſmall pox, and was now near her reckoning, attended her husband in the diſtemper.

diſtemper. She went her full time, and was delivered of a dead child. It may be needleſs to obſerve, that ſhe did not catch it on this occaſion: but the dead body of the infant was a horrid ſight, being all over covered with the puſtules; a manifeſt ſign that it died of the diſeaſe, before it was brought into the world. Wherefore upon the whole, let none entertain the leaſt ſuſpicion, that the ſame perſon can poſſibly have this diſtemper twice. But the reaſon why the body is liable to the infection once, and no more, is to me as entirely unknown, as to the moſt ignorant of mankind. But this I will add, that an infant in the womb may have the good luck to go through the diſeaſe, and yet the marks be quite effaced before the birth [1].

[1] Vid. *Mauriceau, ſur la groſſeſſe et l'accouchement des femmes*, Obſ. 576.

FROM

FROM what we have ſaid concerning abortions, it is eaſy to comprehend what judgment ought to be formed of the monthly evacuations coinciding with the ſmall pox, a circumſtance, at which people are apt to be alarmed. For this evacuation is of the ſame kind with the flooding, which follows upon abortion: and whether it happens at the uſual time, or is brought on irregularly by the extraordinary efferveſcence of the blood; in both caſes it rather affords relief, than threatens danger. However, if in either caſe the diſcharge ſhould prove ſo great, as to weaken the patient over much; it muſt be reſtrained by thoſe medicines, which I have recommended in the *bloody* ſmall pox, without neglecting *to draw blood*, if requiſite. But we know by experience, that women have ſometimes uterine diſcharges thro' the whole courſe of the diſ-

eaſe,

eaſe, without loſs of ſtrength, or any other inconvenience.

The ſame judgment may be formed of hæmorrhages at the noſe, which frequently occur in the beginning of the diſtemper: for they are occaſioned by the rarefaction of the blood in the ſmall veſſels; and therefore, by diminiſhing the heat, are generally more ſerviceable than detrimental, unleſs they run to exceſs.

It happens ſometimes, tho' not often, that the variolous fever is accompanied with a ſingle or double tertian intermitting fever: in which caſe the *Peruvian bark*, or, which is more convenient, *its extract*, is to be given at proper diſtances of time, till the paroxſyms ceaſe to return. Nor is there are any reaſon to fear, that this medicine will hinder the maturation of the puſtules: on the contrary,

contrary, as this new efferveſcence of the blood, and commotion of the humors, may eaſily prove an obſtacle to the ſuppuration; by checking theſe, all things proceed in their uſual courſe. But firſt, the body is to be opened by a *clyſter*. Now the caſe is much the ſame here with reſpect to this febrifuge, as in mortifications, in which it is known to be of ſignal ſervice:[1] and it was from a reflection, that mortifications are always accompanied with a fever, that I have propoſed the ſame medicine in the *bloody* ſmall pox, interſperſed with black ſpots, or in other words, with ſmall gangrenes[2].

HERE it may not be improper to lay down one general rule, which is, that whatever acute diſeaſe comes

[1] Vid. *Medical Eſſays, Edinb. Vol.* v. *part* 1. *artic.* 10.

[2] *Chap.* iii.

upon

upon the ſmall pox, requires to be treated with its own peculiar medicines, and generally bears them very well.

By this time, I hope I have thrown ſufficient light on the moſt material circumſtances of this part of my ſubject. But before I cloſe it, it ſeems well worthy of notice, that this diſeaſe is generally very mild, when it is contracted ſoon after ſome conſiderable evacuation, whether natural or artificial. Thus a woman in child-bed has generally a kindly ſort of the ſmall pox; if ſhe has recovered ſomewhat of ſtrength, by the time ſhe is ſeized with the diſtemper; and therefore reaps benefit from her late ſufferings. The ſame thing may be ſaid of ſuch, as are newly recovered from ſome acute diſeaſe. And I have formerly ſeen many patients in the hoſpital, who

who, after ſalivation for the venereal diſeaſe, caught the ſmall pox, while they were yet vaſtly emaciated; and all of them went through it with great ſafety: a manifeſt proof, that any evacuation, by withdrawing fuel from the fire, agrees particularly well with this diſeaſe. Laſtly, to all that I have hitherto ſaid, this one remark more is proper to be added. Though this be naturally a dreadful diſeaſe, yet it is ſometimes found to produce very good conſequences. For in conſtitutions, where the blood is vitiated, either from an original taint, or by the manner of living; and glandular tumors are occaſioned by the viſcidity of the lymph; the ſmall pox, by purifying the juices, contributes to a better ſtate of health for the future.

CHAP. V.

Of the inoculation of the ſmall pox.

THE cuſtom of inoculating, or transferring the ſmall pox from an infected perſon to one that is ſound, has prevailed among us for ſome years. This matter has drawn our phyſicians into parties, ſome approving, and others diſapproving this new practice. I ſhall therefore freely interpoſe my opinion in the caſe.

OUR nature is ſo formed, that altho' we are always inclined to avoid whatſoever may be hurtful; yet when any evil is to be undergone, which can only be ſuffered once, this we are impatient to go through,

even

even with a certain boldneſs: with this view, that the remainder of life may be paſſed without the uneaſineſs, which ariſes from the continual apprehenſion of its coming upon us.

It having therefore been found by experience, that no body was ſeized with the ſmall pox a ſecond time, and that ſcarce one in a thouſand eſcaped having it once; men began to conſult how the diſeaſe might be communicated; it manifeſtly appearing to be contagious, and it was obvious to conjecture, that the ſeeds of that contagion lay hidden in the puſtules.

But I have often wondered, how ſuch a notion could come into the heads of people almoſt quite ignorant of what relates to phyſic. For, as far as I have been able to

find out by inquiry, this was the invention of the *Circaſſians*, the women of which country are ſaid to excel in beauty; upon which account it is very common, eſpecially among the poorer ſort, to ſell young girls for ſlaves, to be carried away into the neighbouring parts. When therefore it was obſerved, that they, who were ſeized with this diſtemper, were in leſs danger both of their beauty and their life, the younger they were; they contrived this way of infecting the body, that ſo the merchandiſe might bring the greater profit. Neither did the thing require the aſſiſtance of a phyſician or ſurgeon. It was ſufficient to make a ſmall wound in the ſkin in any part of the body, and put into it a very little of the matter taken out of the ripe puſtules; and this even the women had

had learned to practiſe [1]: in like manner as our artiſts now, making a very ſlight inciſion in each arm, and putting upon it a ſmall thread of lint or cotton, imbibed with the corruption, very rarely fruſtrate the hopes of their deſirous patients.

In proceſs of time, not many years ago, this art began to be uſed at *Conſtantinople*, and *Smyrna*; not by the *Turks*, who, imagining all things in life to come to paſs by unavoidable fate, think it impious to oppoſe and reſiſt it; but among the *Grecians*, *Armenians*, and the people of other countries living there, who gave the knowledge of it to our countrymen [2].

[1] See *Philoſophical tranſactions*, N° 339 and 347.

[2] See *Maitland's Account of inoculating the ſmall pox*, *London*, 1722. *Et Diſſertatio medica de Byzantina variolarum inſitione*, *Auctore Le Duc*, *Lugd. Bat.* 1722.

But that I may omit nothing relating to this affair; a learned author [1] has given an account, that the practice of *ſowing* this diſeaſe, as they call it, has been known to the *Chineſe* above theſe hundred years; and that they do it in another manner, which is this. They take the ſkins of ſome of the dried puſtules, which are fallen from the body, and put them into a porcelain bottle, ſtopping the mouth of it very cloſe with wax. When they have a mind to infect any one, they make up three or four of theſe ſkins, putting between them one grain of muſk, into a tent with cotton, which they put up the noſtrils.

It was indeed not difficult for ſuch ingenious people, when they ſaw thoſe, who were converſant

[1] Vid. *Lettres edifiantes et curieuſes des Miſſionaires, Recueil* xx. *pag.* 304.

with the ſick, contract the ſame infection, to gueſs that the air, tainted with the foul breath of the diſeaſed perſon, did, when drawn in, corrupt one, who was ſound; and therefore they might rationally argue, that the ſame contagious matter might be taken in at the noſtrils. Nor were they miſtaken in this point.

It is however certain (whatſoever the author of this narration, more skilled in theological than in medical learning, may ſay to the contrary) that this *Chineſe* way of implanting the diſtemper is attended with much more danger than the *Grecian* one. For the morbid particles inſpired violently offend the brain, by reaſon of its nearneſs to the nerves, which perform the office of ſmelling: and we have in another place proved, that conta-

gion is propagated, not by the blood, but by the nervous liquor [1].

I MYSELF have had an opportunity of making an experiment to this purpoſe. For, when in the year 1721, by order of his ſacred Majeſty, both for the ſake of his own family, and of his ſubjects, a trial was to be made upon ſeven condemned malefactors, whether or not the ſmall pox could ſafely be communicated by inoculation; I eaſily obtained leave to make the *Chineſe* experiment in one of them. There was among thoſe, who were choſen out to undergo the operation, a young girl of eighteen years of age; I put into her noſtrils a tent wetted with matter taken out of ripe puſtules. The event anſwered; for ſhe, in like manner with the others, who were infected by inciſions made

[1] *Introduction to the mechanical account of poiſons.*

in

in the ſkin, fell ſick, and recovered; but ſuffered much more than they did, being, immediately after the poiſon was received into the noſe, miſerablytormented with ſharp pains in her head, and a fever, which never left her till the eruption of the puſtules.

SINCE that time, this practice has been followed, without much fear, and indeed (as it uſually happens in new experiments) ſometimes with a degree of raſhneſs; as promiſing a milder kind of ſmall pox, than when taken in the natural way. For by the accounts collected by thoſe, who have inquired into the affair, it is plain, that ſcarce one in a hundred dies by the inoculated ſmall pox; whereas many more in proportion are deſtroyed by the ordinary diſeaſe [1].

[1] See *Dr. Jurin's Letter to Dr. Coteſworth, containing a compariſon between the mortality of the natural ſmall pox, and that by ino-*

A REMARKABLE inſtance of this difference, and with what ſecurity this tranſplanting the diſtemper may be made, is given in the following relation, communicated to me by a gentleman of great credit. He was a merchant at *St. Chriſtopher's*, in the *Weſt-Indies*, and in the making of ſugar, (which is the trade of that place) employed a great number of ſlaves. In one year, when the ſmall pox raged with more than ordinary violence in the neighbouring iſlands, with his own hands he inoculated three hundred of them, from five to thirty years of age; with ſuch ſucceſs, that not one of them died, though moſt of them were negroes. And whereas all the *Americans* ſuffer this diſtemper in a moſt terrible manner, yet experience ſhews, that it is much more dangerous, when it attacks the natives of *Africa*.

culation. And his *account of the ſucceſs of inoculation in the years* 1724, 25, *and* 26.

THINGS

THINGS being thus, it may be proper to conſider, whether any reaſons can be alledged to the contrary. And, in the firſt place, there are ſome, who inſiſt upon it, that the eruptions produced by inoculation are not the genuine ſmall pox, and conſequently that they cannot ſecure any one from having the diſeaſe hereafter. Moreover, they take pains to bring teſtimonies of patients, who, after having undergone the artificial diſtemper, have nevertheleſs been afterwards ſeized with the true one.

Now, I own, I cannot underſtand how contagion, that is, the very ſeed of the diſeaſe, ſhould produce, not its own proper diſtemper, but another of a quite different kind. Neither certainly does it matter, by which way the infection is received, provided it brings forth manifeſt marks of the diſeaſe. And as to

thoſe

thoſe, who, after having been inoculated with ſucceſs, are, notwithſtanding this, ſaid to have ſuffered the ſmall pox; I muſt proteſt, that, after the moſt diligent inquiry, I have not been able to find out one convincing proof of this kind. I very well know, that a ſtory is ſpread abroad, particularly by a late author, of a boy, upon whom, about three years after he had contracted the diſeaſe by inoculation, it broke out again. But I am well aſſured, that this narration is of doubtful credit; and that there were ſome of the family, who affirmed, that no ſmall pox appeared upon the inoculation; that the parents (as we eaſily believe what we wiſh) deceived themſelves, and that the byſtanders did not care to take away from them this pleaſing miſtake.

BUT to ſpeak plainly, if ſuch a thing happened once, why do we not ſee it come to paſs oftener? Or what can a ſingle example, ſuppoſing it to be true and certain, avail, when innumerable experiments have produced nothing like it? However, ſome men are infected with an incurable itch of writing, and take great pleaſure in contradicting others, to whom they bear envy. Let us therefore give them leave to applaud themſelves, and enjoy their own vain glory.

BUT they will ſtill go on to terrify us, by ſaying that there is danger leſt, together with the ſmall pox, ſome other infectious diſeaſe, inherent in the blood and humors of the ſick perſon, ſhould be tranſmitted into the ſound body: all contagion being very ſubtile, and wonderfully active. And it is in-

deed not improbable, that ſome other diſtemper, beſides thoſe which are cutaneous, may, by ſuch a way as this, get admittance into the ſkin: and ſuch perhaps are ſcrophulous ſwellings, and the venereal diſeaſe. Yet I can hardly believe, that it ever happens, that the ſeed of one diſtemper ſhould bring along with it mixed, the procreative matter of another, of a nature quite different from it. However it be, it would be madneſs in a phyſician, without any choice, to take the morbid matter for this purpoſe, out of ſick bodies, without diſtinction. The moſt proper ſubjects are infants or children, ſound in all other reſpects, as far as can be judged, and born of healthy parents. Beſides, it is, in my opinion, more material, into what kind of a body the venom be infuſed, than out of what it be taken. And this I the

rather

rather mention, becauſe I have more than once known raſh and unwary ſurgeons to implant the diſeaſe into bodies weak, and of an ill habit, with a fatal event. Laſtly, it is of very great conſequence to take care not to throw a new infection into one already infected: for I have obſerved this to prove mortal; nature being oppreſſed and ſinking under a double diſeaſe, when perhaps ſhe might have got the better of either of them ſingle.

I HAVE often conſidered for what reaſons it is, that the inoculated is ſafer than the natural ſmall pox; and the following ſeem to be the chief. Firſt, the venom is communicated to a young, healthy, and, for the age, ſtrong body. In the next place, the violence of the fever, which follows, is prevented, if there be occaſion, by bleeding, and gentle

tle purging. And laſtly, through the whole time, that the contagious matter is exerting its malignity upon the humors (which is generally eight or nine days) quietneſs, moderation in diet, and every thing elſe is ſtrictly obſerved: whereas, many incur the natural diſtemper on a ſudden, when the blood is heated with wine and exerciſe; by which means all the ſymptoms muſt neceſſarily prove more ſevere and dangerous. Some have alſo been of opinion, that the diſcharge out of the wound, made to introduce the purulent matter, and likewiſe from the ſmall pimples, which break out round it, may contribute ſomething to the ſafety of the patient. But the ſmall quantity, which runs out this way, cannot, I think, avail much. Two *bliſters* laid, one to an arm, the other to a leg, will certainly do much more, eſpecially if they be kept

kept running throughout the whole courſe of the diſeaſe. And I make no queſtion, but this practice would be of very great ſervice.

It is proper to mention, that this artificial diſeaſe is uſually ſo mild, that it ſcarce requires any help from medicines. But where it happens otherwiſe, as it ſometimes does, the ſame will be neceſſary, which have been directed in the ſeveral kinds of the natural ſmall pox.

To conclude; it ought not to be omitted, that boils, and ſwellings under the ears, and in the armpits, ariſe more frequently after the diſtemper procured by art, than after that, which comes of its own accord; for this reaſon, as I ſuppoſe, that the venomous matter is puſhed forward with leſs force, which diſadvantage nature makes amends for this way. Therefore, all poſſi-

ble means are to be uſed to ripen ſuch tumors, of whatever kind they are: if this cannot be done, they muſt be opened by inciſion; and when all the matter is drawn out, the body muſt be purged by proper medicines, which are to be oftener repeated in this, than in the natural diſeaſe.



CHAP. VI.

Of the meaſles.

THE meaſles have a great affinity with the ſmall pox; being originally bred in the ſame country, propagated in the ſame manner, by infection, into diſtant parts of the world; and never ſeizing any perſon more than once.

THE hiſtory of this diſeaſe, as it generally appears among us, Dr. *Sydenham* has deſcribed with his uſual accuracy, calling it *a fever, which in its nature and method of cure agrees very much with the ſmall pox*; that is, accompanied with a great inflammation, and in which puſtules of a particular kind are thrown out upon the ſkin.

Now this inflammation does not only affect the ſurface of the body, but the inner parts alſo, and particularly the lungs: hence follows a cough, with a difficulty of breathing. And although the diſtemper in its nature be leſs dangerous than the ſmall pox, and continues a ſhorter time; for it uſually is ended in ſix or ſeven days, or, at the fartheſt, in eight, very thin, and light ſcales, like fine flower, falling off from the skin at that time; yet it ſeizes with more violent heat, and greater anxiety than the other does. Therefore *Rhazes* obſerved, that the inflammation of the whole body, the inquietude, and anxiety of mind, are much more terrible in the meaſles, than in the ſmall pox[1].

I HAVE therefore often wondered, why that ſagacious and experi-

[1] *See his book, at the end of this. Chap.* i.

enced phyſician, whom I have ſo often mentioned with praiſe, did not preſcribe bleeding in the very beginning of the diſeaſe; but neglected this material part of the cure ſo far, that he only ordered it at the end, when a hot regimen, and too warm medicines, had brought upon the patient a cough and ſhortneſs of breath. Eſpecially ſince he himſelf takes notice, that the looſeneſs, which often follows this fever, and *which*, he ſays, *proceeds from hot vapors from the inflamed blood falling upon the bowels*, is only to be cured by blood-letting [1]. But the great man deſerves pardon upon this account, that in thoſe times phyſicians never attempted to take away blood in thoſe fevers, which were attended with any eruptions, particularly in children, who are the moſt liable to this kind of ill-

[1] *De morbillis, cap.* v. *pag.* 207. *edit.* 1685.

neſs. Their reaſon was, leſt that emptying of the veſſels ſhould hinder the coming out of what was to be diſcharged by the skin. But daily experience ſhews, that this fear is vain, and that the event is quite contrary to what they imagined.

To come therefore to the cure; as this peſtilential diſeaſe is of kin to the ſmall pox, it requires a management not very different from the ſame, which we have recommended in that diſtemper. Blood muſt be taken away in the beginning, according to the age and ſtrength of the patient. It is beſt, if poſſible, to do this before the eruption of the puſtules: but, if they are already come out, it muſt however be taken away. For the greateſt danger is an inflammation of the lungs, which cannot be prevented too ſoon. Therefore in the height of the fever alſo,

alſo, although bleeding was not neglected in the beginning, yet it is ſometimes neceſſary to repeat it. And in the laſt place, at the end of the diſeaſe, when the ſkin is now growing dry, and the ſcales falling off, it will be a great error not to open a vein again; that by this means, a flux of humors upon the breaſt and inteſtines, and the ſymptoms of a hectic fever and conſumption may be happily prevented.

It is really a thing to be grieved at, that phyſicians, in ſo great an inflammation of the whole ſurface of the body, ſhould not always have directed this leſſening the quantity, and thereby checking the heat of the blood. And I moſt of all wonder, that Dr. *Morton*, who took notice of the neceſſity of this practice, when the diſeaſe was at the higheſt, ſhould abſolutely forbid it in its firſt

appearance. But this phyſician's judgment was perverted by a vain, and not rightly underſtood, opinion of a malignity and venom infecting the animal ſpirits; which had ſo poſſeſſed his mind, that he thought of nothing more, than of throwing into the body hot medicines, called cordials, as auxiliary forces againſt the ſuppoſed enemy [1]. A bad example, and at the ſame time a convincing proof, how neceſſary it is, that a man ſhould be inſtructed in the principles of mechanic philoſophy, before he applies himſelf to the art of phyſic.

The diet ought to be the ſame as is preſcribed in the ſmall pox; taking particular care that the body be kept lax rather than bound up, through the whole courſe of the diſtemper.

[1] *De febribus inflammatoriis, cap.* iv.

As

As to remedies; to thoſe cooling ones, which are directed in the other diſeaſe, muſt be added ſuch as abate the cough, and help expectoration; particularly *oily linctus* and the *pectoral infuſion*, of which, with the addition of a little nitre, the patient may drink frequently.

Dr. *Sydenham* gave *diacodion*, even on the firſt days of the illneſs; but I think he was not cautious enough in this point: for all medicines of this kind thicken the humors, ſtreighten the breath, and retard the eruption of the puſtules. Therefore, during the increaſe of the diſtemper, they are to be uſed very ſparingly; but at the latter end they are of great ſervice: inaſmuch as there is then a neceſſity to quiet the cough, which from the ſharp defluxion upon the lungs threatens a hectic fever and conſumption.

ption. But in the mean time, gentle purges are to be given at due intervals. *Milk*, eſpecially that of *aſſes*, muſt be drank. Change of air is alſo neceſſary. And laſtly, exerciſe, ſuitable to the ſtrength of the patient, is to be daily enjoined.

I AM afraid, leſt I ſhould ſeem vainly to court applauſe by the following narration; yet it is ſo much to the purpoſe, and ſo happily confirms what I have ſaid, that I muſt beg leave to relate it. About forty years ago, the meaſles raged with ſo great violence in this city, that they proved more fatal than even the ſmall pox. At that time, a phyſician of great eminence came to me, deſiring that I would inform him what method I followed in this diſeaſe. I asked him, whether or not he uſed to take away blood?

He

He anſwering no, becauſe *Sydenham* very ſeldom did it; I adviſed him to open a vein in the beginning of the diſtemper, or, if he was called in later, as ſoon however as he poſſibly could: for, ſaid I, this diſeaſe always brings with it a *peripneumony*, which he very well knew ever required bleeding. Not long after, he met me again, returning me hearty thanks for my counſel, aſſuring me that he had not loſt one patient, whom he had treated in this manner. Since that time, this practice grew ſo common, that it is now followed even by our apothecaries.

In the laſt place, it is proper to take notice, that, as was obſerved concerning the ſmall pox [1], that the diſeaſe is more or leſs rife, according as the ſeaſon of the year and

[1] *Chap.* ii.

ſtate

ſtate of the air conſpire with the infection; ſo the like happens in the meaſles. And Dr. *Morton* relates, that in the year 1672, this diſtemper was ſo terrible, that in *London* there died of it three hundred every week [1].

But I have at laſt finiſhed this little work: which tho' it may perhaps, to contentious and malevolent perſons, give matter for calumny and finding fault; yet will, I hope, prove beneficial to mankind, eſpecially to our own countrymen. This is all I deſire; for the conſciouſneſs of having done right is beyond all praiſe, carrying with it its own reward: and this he always enjoys, who conſults the public good, and by his actions ſhews, that he thinks he is

Not for himſelf, but for the whole world born [2].

[1] *Append. ad Exer. de morbis acutis, pag.* 427.

[2] *Non ſibi, ſed toti genitum ſe credere mundo. Lucan. L.*ii. ℣ 383.

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RHAZES's TREATISE ON THE SMALL POX AND MEASLES.

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PREFACE.

In the Name of God, Merciful and Gracious.

ABU-BEKER MOHAMMED, the ſon of *Zacharias*, ſaith thus:

ON a certain night, at a meeting in the houſe of a nobleman, of great goodneſs and virtue, and very fond of the explanation of uſeful ſciences, that they might be made plain and intelligible, for the public benefit; the converſation having turned on the ſmall pox, I then ſpoke what came into my mind on that ſubject. Which when that great man (whom may God long preſerve for the good of mankind) had heard; he deſired, that I would write a diſcourſe of that diſeaſe with ſufficient aptneſs, ſolidity, and clear-

neſs: becauſe there had never yet been publiſhed, either by the ancients or moderns, a ſatisfactory account of it.

I THEREFORE compoſed this treatiſe, hoping to receive my reward from the almighty and glorious God, as the effect of his good will.

Now this is the ſum of its contents, and the heads of the chapters.

CHAP. I. Of the cauſes of the ſmall pox; and how it comes to paſs, that no mortal, except by chance here and there one, eſcapes free from this diſeaſe.

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CHAP. XII. Of the food and diet in the ſmall pox.

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CHAP. XIV. Of the curable and incurable ſmall pox and meaſles.



CHAP.

CHAP. I.

Of the cauſes of the ſmall pox; and and how it comes to paſs, that no mortal, except by chance here and there one, eſcapes from this diſeaſe: alſo a brief account of what Galen *has mentioned concerning it.*

AS to thoſe phyſicians, who affirm; that the moſt excellent *Galen* has made no mention of the ſmall pox, and therefore that he did not know this diſtemper; ſurely they have either never read his works at all, or only very curſorily: nay moſt of them do not know, whether what he plainly ſays of it, is to be underſtood of that diſeaſe. For *Galen*, in a certain treatiſe, ſays, *this* * * *does good this and that*

way, and alſo againſt the ſmall pox And in the beginning of the fourteenth book *Of pulſes*, that *the blood is putrefied in an extraordinary degree, and that the inflammation runs ſo high, that it burns the ſkin; ſo that the ſmall pox, and peſtilent carbuncle, are bred in it, and quite conſume it.*

AND in the ninth treatiſe of the book *Of the uſe of the parts*, he obſerves, that *the ſuperfluous parts of aliments, which are not turned into blood, and remain in the members, putrefy, and in time increaſing do ferment; whence, at laſt, are generated the peſtilential carbuncle, the ſmall pox, and confluent inflammations.*

LASTLY, in the fourth part of his *Commentary* upon the *Timæus* of of *Plato*, he ſays, that *the ancients gave the name* φλεγμονὴ *to every thing, which produces redneſs, as the carbuncle*

buncle, and ſmall pox; and that theſe diſeaſes are bred in thoſe, in whom bile abounds.

BUT as for thoſe, who alledge, that he has propoſed no remedy or cure, nor explained the nature of this diſtemper; they indeed ſay what is true: for he mentions no more than what we have cited. But God knows, whether he might not have done it in ſome other books, which have not yet appeared in Arabic.

As for my own part, I have with great diligence inquired of thoſe, who underſtand both the Syriac and Greek language, and deſired them to inform me concerning this matter: but not one of them could tell me more than what I have ſet down. But this indeed I very much wonder at, and why he paſſed over this diſtemper in ſilence; eſpecially ſince

it was frequent in his time, and therefore there was great reaſon for his preſcribing remedies againſt it, as he was ſo diligent in finding out the cauſes and cures of diſeaſes.

THE moderns have, it is true, propoſed ſome medicines for the cure of the ſmall pox, but not diſtinctly and clearly enough; neither has any one of them explained the cauſe of it, and why, except here and there one, no body eſcapes it; nor ſhewed the methods of cure in a right order. Upon which account, I hope that the good man, who encouraged me to undertake this work, will have his recompence; and that my reward will be doubled, when I ſhall have deſcribed whatever is neceſſary to the cure of this diſeaſe in due method, aſſigning to every thing its proper place; by the help of God.

WHERE-

WHEREFORE let us begin to recite the efficient cauſe of this diſtemper; and why it happens, that ſcarcely any one mortal eſcapes it. And then we will purſue ſeparately, in the ſubſequent chapters, the other things, which relate to it; and, with God's aſſiſtance, ſhall ſay on each head whatever is neceſſary for its cure.

I SAY then,[1] that the body of man, from the time of his nativity, till he arrives at old age, continually tends to dryneſs; and that therefore the blood of infants and children, and, in proportion, the blood of young men, abounds much more with humidity, than the blood of old men, and is alſo hotter. And this indeed *Galen* teaches us, in his *Commentaries upon the aphoriſms*, where he ſays:

[1] *Here begins the tranſlation of the anonymous Greek interpreter.*

the

the heat of children is indeed greater in quantity, than the heat of young men; but the heat of young men is more violent in quality. This alſo is evident from the force of their natural actions, as the digeſtion of their food, and accretion in children.

THEREFORE, the blood of children may be compared to new wine, in which the fermentation leading to ripeneſs is not yet begun: and the blood of young men to the ſame, fermenting and emitting ſteams, till it is quiet and ripe. And, laſtly, the blood of old men is like to wine, whoſe ſtrength is gone, ſo that it becomes vapid, and begins to grow ſour.

Now, the ſmall pox ariſes, when the blood putrefies and ferments, and the fermenting particles are thrown out of it; the blood of children, like to new wine, being changed to that

of

of young men, which is as wine perfectly ripened. And this fermentation and ebullition is the diſeaſe.

And this is the reaſon, why children, eſpecially males, rarely eſcape being ſeized with it. For, without doubt, as the wine naturally ferments, till it comes to perfection; ſo the blood undergoes the ſame alteration, in paſſing from its firſt to its ſecond ſtate. And there ſeldom happens a temperament in an infant or child, in which ſuch a change can be made in a ſmall time, and without manifeſt ſigns of it: as may be judged from their diet, which in infants is milk; and in children, not milky, but their food is ſtronger, in proportion, than that of other ages, and more compounded. To which it may be added, that in theſe there is, after food, a greater motion of the humors. For theſe reaſons,

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very few children go into life without this diſtemper. Beſides this, great alterations are made here, by different temperaments, manners of life, and habits; as alſo, by the conſtitution of the ambient air, and ſtate of the blood, both as to quantity and quality: for in ſome this flows quicker, in others ſlower; in ſome it abounds, in others it is deficient; in ſome it is very bad, in others in a better condition.

As to young men, whereas the change in their blood is already made, its maturation finiſhed, and the particles of moiſture, which ſhould cauſe putrefaction, are now exhaled; hence it follows, that this diſeaſe cannot be generated in them, at leaſt but very ſeldom, that is, in ſuch, whoſe blood ſtill abounds with too much humidity, or is very corrupt, with a violent inflammation;

or who, perhaps, when they were children, had been attacked with the chicken pox, when their blood had not yet paſſed from the firſt ſtate to the ſecond; or, laſtly, who have a moderate heat, that is, without much moiſture; and when they had the chicken pox, were of a dry temperament, and lean.

In an advanced age, the diſtemper will ſcarcely appear, unleſs perhaps in putrid, malignant, and peſtilential conſtitutions of the air, in which this diſeaſe chiefly rages. For ſuch an air diſpoſes bodies very much to heat and moiſture; and an inflamed air promotes eruptions, by blowing up the ſpirit in the ventricles of the heart, and communicating to it the like diſpoſition, which by the force of the heart is ſent into the blood, which is in the arteries; and

and brings it into the ſame ſtate of corruption.

THUS we have ſufficiently, though ſuccinctly, treated of the *cauſes* of the ſmall pox. We ſhall now proceed to ſhew, what bodies are moſt diſpoſed to this diſeaſe and the meaſles.

CHAP. II.

Of bodies diſpoſed to the ſmall pox.

BODIES inclined to this diſeaſe are generally ſuch, as are moiſt, pale, and fleſhy; the well coloured alſo, eſpecially if they are ruddy and tending to brown, are diſpoſed to it, if they are loaded with fleſh. So are likewiſe thoſe, which are frequently liable to acute and continual fevers, to running of the eyes, red pimples, and boils, proceeding from the eating of ſweet things; as dates, honey, figs, grapes, and all thoſe ſweets, in which there is a groſs humor; particularly, thick gruels, food made of unground wheat with honey and water, or à great quantity of wine and milk.

LEAN,

LEAN, bilious, hot, and dry bodies are more inclinable to the meaſles, than to the ſmall pox. But if they happen to be taken with the ſmall pox, the puſtules are either few, diſtinct, and favourable; or, on the contrary very bad, irregular, deceitful, dry, with putrefaction, and no maturation.

LASTLY, thin and dry bodies, of a cold temperament, are neither ſubject to the ſmall pox, nor to the meaſles. And if they happen to catch the ſmall pox, they have but few, in a moderate way, and without danger, with a very ſlight fever; becauſe ſuch conſtitutions extinguiſh the diſeaſe in its very beginning.

THE ſeaſons of the year, in which the ſmall pox are moſt frequent, are various: they rage moſt at the latter end of the autumn, and the beginning of the ſpring; and when

in the ſummer there are great and frequent rains, with continual ſouth winds; and laſtly, when the winter is warm, and the winds ſoutherly.

When the ſummer is exceſſively hot and dry, and ſucceeded by a hot autumn, in which rains come on very late; then the meaſles quickly ſeize thoſe, who are diſpoſed to them, that is, thoſe who are lean, hot, and of bilious conſtitutions.

But all theſe things admit of great differences, by reaſon of the diverſity of countries and places, and occult diſpoſitions in the air, which bring on thoſe diſtempers, and render bodies ſubject to them. And therefore at ſuch times, great diligence is to be uſed in the preſervation from them; as we ſhall ſhew in the ſequel.

CHAP. III.

Of the prognoſtic ſigns of the eruption of the ſmall pox and meaſles.

THE eruption of the ſmall pox is preceded by a continual fever, a pain in the back, itching in the noſe, and terrors in ſleep. Theſe are the proper ſigns of the approaching ſmall pox, eſpecially the pain in the back, with a fever; and alſo a pricking, which the patient feels all over his body; together with a fullneſs and redneſs of the face, which at times goes and comes; a redneſs of the eyes, a heavineſs of the whole body; frequent yawnings, a pain in the throat and breaſt, with a difficulty in breathing, and ſtreightneſs in the gullet; then a dryneſs of the mouth, thick ſpittle,

ſpittle, a hoarſeneſs of the voice; head ach, anxiety of mind, inquietude; ſick qualms, and heavineſs of heart: with this difference, that anxiety of mind, ſick qualms and heavineſs of heart, oppreſs more in the meaſles, than in the ſmall pox, unleſs the ſmall pox be of a bad ſort; for the meaſles are from a very bilious blood. And, on the other hand, the pain in the back, the heat and inflammation of the whole body, eſpecially in the throat, with a ſhining redneſs, are more proper to the ſmall pox than to the meaſles.

WHEREFORE, upon the appearance of theſe ſigns, or ſome of the worſt of them, you may be aſſured, that one or the other of theſe diſeaſes is nigh at hand.

As to the ſafer kind of the ſmall pox; in theſe, the quantity of blood

is greater than its bad quality: and hence ariſes the pain of the back; the greater blood-veſſels, which are ſituated near the vertebrae of the back, being diſtended with too great a quantity of blood.

CHAP.

CHAP. IV.

Of the regimen or cure of the ſmall pox in general.

THE firſt article ſhall be of the preſervation to be uſed, before the ſigns of the ſmall pox appear: and after they have appeared, how the diſeaſe may be leſſened.

THE ſecond, concerning the eruption.

THE third, the care to be taken of the eyes, ears, noſe, throat, and joints.

THE fourth, of the ripening of the puſtules.

THE fifth, of their drying.

THE ſixth, how the ſcales and gruſts are to be cleared from the eyes, and the reſt of the body.

THE ſeventh, of deſtroying the marks.

THE eighth, of the diet in the ſmall pox.

THE ninth, of regulating the diſcharge by the inteſtines.

THE tenth, of curable and incurable ſmall pox and meaſles.

OF each of theſe I ſhall, God willing, briefly, but ſufficiently, diſcourſe.



CHAP. V.

Of preſervation from, and leſſening the diſeaſe.

BLOOD ought to be taken away from children and young men, if they have never had the ſmall pox, or have only had what is called the chicken pox (eſpecially at ſuch ſeaſons as we have above deſcribed) before they are ſeized with a fever, and the ſigns of the diſeaſe appear. A vein may be opened in thoſe, who are fourteen years old; to thoſe who are younger, cupping-glaſſes muſt be applied, and their lodgings ſhould be kept cool.

LET their diet be yellow lentils, tarts made of unripe grapes, minced fleſh-meat dreſſed with vinegar and honey, or with the acid ſyrup; to

which raiſins, a few figs, and chiches are ſometimes added: alſo kid broth, veal jellies, and boiled wood-cocks and hens. But theſe muſt be mixed with the juice of unripe grapes.

THEIR drink ſhould be water cooled with ſnow, or clear ſpring water cold; with which their chamber may alſo be ſprinkled.

LET them frequently eat acid pomegranates, and the inſpiſſated juices of acid and aſtringent fruits, as pomegranates, currants[1], and the like.

WHERE the conſtitution is hot, and there is a great inflammation; barly water, with a fourth part of

[1] The *Arabic* word is *Ribas*, which alſo ſignifies a ſort of *lapathum acetoſum*, or *ſorrel*, of which the red and acid juice boiled to two thirds, is called *Rob de Ribes*. See Golii *Lexic.*

acid

acid pomegranate juice, may be drank in the morning. But if the heat be leſs, a ptiſan of barley with ſugar, is proper; and vinegar, lentils, pomegranates, and the juice of unripe grapes, may be added to the food: for all theſe thicken and cool the blood, and make the diſtemper more mild.

THIS regimen is of great ſervice in all times of peſtilence: for it diminiſhes the malignity of peſtilential ulcers and boils; and prevents quinſeys, pleuriſies, and all diſtempers ariſing from bile and blood.

THE patient may go into cold water, and ſwim in it about noon. He muſt abſtain from new milk, wine, dates, honey, and, in general, from ſweet things, and meats made by a mixture of fleſh, onions, oil, butter, and cheeſe; from mutton, beef,

beef, ſhell-fiſh, high ſeaſoned things, and hot ſeeds. Inſtead of theſe, in times of contagion, he may eat young birds; and if the temperament be hot and moiſt, liable to putrefaction, or hot and dry, and apt to be inflamed; he muſt eat as follows; that is, in the hot and dry conſtitution, cooling and moiſt garden herbs, purſlain, mallows, beet, gourds, cucumbers, ſorrel, and ſmall pompions.

As to ſweet melons, they are forbidden; and if any one by chance eats of them, he muſt preſently drink a ſpoonful of the juice of ſome of the acid fruits. He may be allowed ſoft fiſh, and butter-milk.

To the food of thoſe, who are corpulent, fleſhy, and of a ruddy complexion, ſuch cooling and drying things, as we have mentioned, may be added. They ſhould all forbear

forbear labour, fatigue, bathing, venery, walking or riding in the ſun and duſt, drinking of ſtagnating waters, blaſted fruits or moldy herbs; and alſo figs and grapes: becauſe theſe drive the humors to the ſkin, and, filling the blood with flatulent ſpirits, diſpoſe it more to fermentation and ebullition. Their body muſt be opened, if there be occaſion, with the juice of prunes and ſugar, or with whey and ſugar. If the air be putrid and peſtilential, their face may be continually ſprinkled with the water of ſanders and camphire; which, if it pleaſes God, will have a good effect.

As to ſucking infants; if they are fat and ruddy, and above five months old, let them be cupped; and let the nurſe, as far as poſſible, be managed in the manner we have mentioned.

I COME now to thoſe medicines, which thicken and cool the blood, and check its ebullition and putrefaction.

ALL acid things are proper for this purpoſe, eſpecially the water called *Al-râib*, that is, the ſour, bitter water, which ſwims upon buttermilk expoſed to the ſun; and the acid juice of citrons.

THE ſame intention is very well anſwered by many things, which have an aſtringency joined with their acidity, and thereby condenſe the blood. Such are, ſour grapes, ſumac, Rob ribas, or the inſpiſſated juice of currants, apples, quinces, and pomegranates; jujubes, lentils, coleworts, coriander, lettice, poppies, endive, nightſhade, ſugar called Bambu [1], the ſeeds of fleawort, and camphire.

[1] The Indian name for a concreted juice, like ſugar, in an Indian reed.

THE

THE following compoſition is good to cool the blood, and reſtrain the heat of the liver, and efferveſcence of the bile.

TAKE of red roſes beaten ten drachms; Bambu ſugar twenty drachms; ſumac, the ſeeds of wild ſorrel, lentils peeled, berberies, the ſeeds of purſlain, ſeeds of white lettice, of each five drachms; red ſanders two drachms and a half; camphire one drachm.

LET theſe be mixed, and give three drachms of this powder to the patient, every morning, in his drink, together with an ounce of the juice of wild ſorrel, or of ribas, pomegranate, or unripe grapes, and the like.

THE medicine *Al-ſacangjabin*, that is, oxymel with ſugar, is likewiſe good, which is thus prepared.

TAKE

TAKE one part of red ſharp vinegar, depurated; two parts of roſewater; mix, and infuſe in the cold mixture, one ounce of red roſes; half an ounce of balauſtines; two ounces of pomegranate peel, for the ſpace of three days. Then ſtrain the liquor, adding to it, according to the quantity of the vinegar, twice or thrice as much of the ſugar *tabarzad*, that is, white ſugar-candy. Boil it ſufficiently, and uſe it.

IT will alſo be of uſe to take of roſes and bambu ſugar, of each ten drachms; white ſanders three drachms; camphire one drachm; and moiſten them with the mucilage of the ſeeds of fleawort; then make the maſs into pills, or troches. Of theſe, at proper times, three drachms may be given in the patient's drink, together with one ounce

ounce of the aforeſaid *Al-ſacangjabin.*

BESIDES theſe, the following ſyrup is excellent, and wonderfully exceeds in virtue all others, which I have ſeen tried; though perhaps the *ſyrup of pearls*, which the Indians deſcribe, and of which they boaſt more than they can have experienced, may be more powerful. For they ſay, that *if any one drinks of that ſyrup, tho' nine puſtules have already appeared, there will not come out a tenth.*

Now the compoſition of mine is this.

TAKE of red vinegar depurated, old, and ſharp, three pounds; of the juice of acid pomegranates, the acid juice of citrons, the juice of unripe grapes, of ribas, of the Syrian mulberries, the expreſſion of Syrian ſumac, and berberries, of each one

one pound; the juices of lettuce and tarragon, of each a quarter of a pound; of the decoction of red jujubes, and the infuſion of lentils, each a pound and half. Mix all together, and add three pounds of ſugar; boil the whole, and put to it ſome of the ſyrup already made, hot, working it with a peſtil, till it is diſſolved: then mix it with the whole, ſtirring it continually with a ſtick of camphire wood; throw it into a mortar of ſtone, or willow-tree wood, taking out the cleareſt part, all the while; having added and mixed bambu ſugar and camphire. Uſe this before the ſmall pox appears, and alſo after the appearance, as we ſhall direct anon. It is alſo proper in all diſtempers, which ariſe from a bilious blood, in peſtilential ulcers, boils, quinſeys, and the like.

WHAT I have ſaid, may in general ſuffice concerning preſervation from the ſmall pox, before the fever, which attends their ſigns, comes on.

THE laſt mentioned ſyrup repells the diſeaſe from one, who is in ſuch a condition, that it can be repelled; ſo that what comes out will be very moderate. It alſo effects, that the change of the blood from the firſt ſtate to the ſecond, ſhould not be done too haſtily, and at once, with too great ebullition, and frightful and dangerous ſymptoms; but by degrees and in a longer time; in the way of maturation, not putrefaction, without terrible and dangerous fevers.

BUT when the fever, which accompanies the eruption, ariſes, this regimen is no longer to be uſed, unleſs with great caution and prudence;

for a miſtake here is very dangerous, for this reaſon, that while the blood is rarefied, and nature, according to the temperament of the patient, is endeavouring to expel the morbific matter; if then the refrigeration and condenſation, which you intend, does not exceed the cool ſtate the patient was in before, it will happen, that the ebullition will break out a ſecond or third time; and thus nature will be diſturbed in her work. Neither can that ebullition be checked, without great danger: for thoſe remedies muſt be uſed for this purpoſe, which do in a manner congeal and coagulate the blood; ſuch are, opium, hemlock, a great quantity of juice of lettice, night-ſhade and the like. And the congelation of the blood, and extinction of natural heat, by all theſe, is not ſafe; becauſe of the exceſs, which is eaſily committed: for it

will be hard, at the ſame time to repreſs the effervescence, and preſerve the due natural heat. In one word, care muſt be taken, not to extinguiſh preternatural and natural heat together.

Now I ſhall communicate a practice, which phyſicians, either through ignorance, or avarice, that they only may receive profit from it, uſually conceal; and it is this. When you obſerve, upon the ſigns of the diſeaſe, a diſtenſion of the belly, pain in the back, redneſs of the face and eyes, a violent head-ach, with a full pulſe, and alſo a ſtreightneſs of breath, a red and turbid urine, and ſuch a heat of the body, as a man feels, who has been for ſome time in a hot bath; eſpecially, if the body be fleſhy; there is then all the reaſon in the world to take away blood. Wherefore, draw away a good quan-

tity, even till the patient faints away. It will be beſt to do it from the baſilic vein, or ſome of its branches; but if that cannot be found, from the cephalic vein. Sometimes, when the baſilic does not appear, it may be taken away from the vein in the ankle; but better from the baſilic or its branches, becauſe they draw from the greater veins in the abdomen, more than the cephalic does.

If the ſymptoms do not run very high, altho' they are manifeſt, draw blood, but ſparingly; and when they are leſs, take away very little. Then proceed in the cure with repelling medicines, as has been mentioned.

If by theſe the feveriſh heat is removed, and the pulſe and breath are come to their natural ſtate; ſtill inſiſt on the uſe of them, till the heat of the diſeaſe is perfectly abated,

ed, which will be done in a ſhort time.

In order more effectually to perform this extinction, let the patient drink water made cold in ſnow to the higheſt degree, very plentifully and often; ſo that he may feel the coldneſs of it in his bowels. If, after this, the fever and burning return, give this water a ſecond time, two or three pints, or more, in the ſpace of half an hour.

If ſtill the heat return, and the belly be full of water, make him vomit it up, and then give it again. And if the water finds a paſſage, either by ſweats or urine, you may be aſſured the patient is in a good way.

But if the water does not paſs, and the heat returns as it was at firſt, or even is more violent; omit giv-

ing the water ſo often, and have recourſe to the other extinguents, which have been deſcribed; and if the patient finds relief, perſiſt in the uſe of them. If, on the contrary, you perceive that they produce an intolerable uneaſineſs and inquietude, you may certainly know that the eruption of the ſmall pox or meaſles is at hand. Wherefore you muſt quit this method, and haſten to aſſiſt nature, in expelling her ſuperfluities, in the manner I ſhall deliver in the following chapter.

CHAP.

CHAP. VI.

Of thoſe things, which haſten the eruption of the ſmall pox.

THE eruption of the ſmall pox and meaſles is promoted by the following means. The patient muſt be well wrapped up in cloaths, and his body rubbed all over. He muſt be kept in a room not very cold; he ſhould drink frequently, a little at a time, of cold water; to provoke ſweat, and aſſiſt the protruſion of the humors to the external parts.

THE ſick perſon muſt put on a double ſhirt, the borders of which muſt be bound. Underneath him, place two ſmall baſons of very hot water, one before, and the other be-

hind him; ſo that the vapour may come to the whole body, except the face: by which means the ſkin will be rarefied, and diſpoſed to receive the erumpent humor. For the ſurface of the body may, in this caſe, be compared to a leech, which, to cool its own heat, attracts whatſoever it can. And by this management, not only is the ſkin ſoftened, but the ſtrength of the patient is alſo preſerved: ſo that nothing can be more proper.

As to furnaces and baths, they are both deſtructive at this time, by ſo overheating and weakening, that a ſwooning follows; by which nature is diverted from its work with great danger, if the fit be violent and long: for nothing is a greater indication of the approach of death, the natural heat retiring into the inner parts; after which it will be

ſoon oppreſſed and extinguiſhed by the overabounding humors. Likewiſe when the hot vapour, which I have directed, is uſed, it muſt never be ſuffered to cool upon the body; but is preſently to be wiped and dried off, with great diligence. This method is abundantly ſufficient to forward the coming out of the diſeaſe, when nature is not languid, or the humors too thick and viſcid.

But in caſe it happens, that the outward fever is indeed mild, but anxiety and inquietude continue, and the eruption is difficult; you muſt wait till the fifth day is over, and then uſe thoſe medicines, which promote the eruption. But this is to be done with great caution, and all manner of attention, in the way which I have mentioned, when ſpeaking of the rules to be obſerved in giving extinguiſhing remedies; for

for an error here, although it be not ſo great as the other, yet is alſo dangerous. And the caution conſiſts in not being too haſty in giving theſe medicines, but to inſiſt upon the former regimen, as long as there is any proſpect of ſucceſs without them; and as long as you are not yet certain, that the fever is too remiſs in the inward parts, as well as it is in the outward. This you will eaſily know by the pulſe and reſpiration not being too quick, full, or irregular; and if, in feeling the breaſt, you do not find it hot in the higheſt degree. For tho' the fever be doubly or trebly increaſed, it will not therefore be mortal; as you may judge by comparing this with other fevers, which you have obſerved in perſons of the ſame temperament, and in the ſame degree of heat with your patient, who nevertheleſs have recovered.

THESE extinguiſhing remedies are alſo to be applied, when, as ſoon as the puſtules appear in the ſkin, the patient feels himſelf to be pretty well, and his pulſe and breath are eaſy. But if, on the other hand, the eruption goes on ſlowly and with difficulty, they muſt be abſolutely forborn: for to uſe them, is to ſtrive againſt nature, and check the protruſion. And when any anxiety follows upon the uſe of extinguents, eſpecially a palpitation of the heart, be ſure that you have committed a great error. You muſt therefore immediately take all poſſible pains in ſoftening the ſkin, in the manner I have taught; and give to drink frequently warm water, either alone, or in which fennel and ſmallage ſeeds have been firſt boiled, and the like ſimples, which conduce to the eruption; according as the heat of the patient,

ent, and his ſtomach will bear them; regard alſo being had to the ſlowneſs of the pimples in coming out.

THIS is the deſcription of an eaſy gentle medicine, which, without too much heat, promotes the eruption.

TAKE yellow figs to the number of thirty; raiſins, the ſtones being taken out, twenty drachms; pour upon them three pints of water, and let them boil till they are diſſolved. Give to the patient of this liquor half a pint, at three ſeveral times. Then cover him up well in cloaths, and foment the body, as is above directed.

THE following is yet more powerful.

TAKE of the aforeſaid decoction four ounces; of the decoction of fennel and ſmallage ſeeds two ounces;

ounces; let the patient drink it, as has been directed.

ONE ſtill more efficacious is this.

BOIL fennel ſeeds and ſmallage ſeeds, of each ten drachms, in an earthen veſſel, till the water is red; ſtrain it, and give three ounces at a time.

LASTLY, this compoſition is very good and uſeful, at ſeveral times.

TAKE of red roſes four drachms; of lentils decorticated nine drachms; yellow figs ten; of gum tragacanth three drachms; of white raiſins ſtoned ten drachms; lack, cleared from its ſticks, and waſhed, three drachms; fennel and ſmallage ſeeds, of each five drachms. Boil all theſe in three pints of water, to one pint: Strain the liquor, and give half a pint of it, with a ſixth part of a drachm

drachm of ſaffron, twice or thrice, as there may be occaſion.

We ſhall now ſpeak of thoſe parts of the body, of which care is to be taken.

CHAP. VII.

Of taking care of the throat, eyes, &c. as ſoon as the puſtules have appeared.

AS ſoon as ever the ſigns of the ſmall pox appear, particular care muſt be taken of the eyes, the throat, the noſe, and ears, and alſo of the limbs, in the way I am going to deſcribe. Nay ſometimes it will be neceſſary to extend our care even to the ſoles of the feet, and the palms of the hands: for oftentimes violent pains ariſe in theſe parts, the hardneſs of the ſkin hindering the eruption.

UPON the firſt appearance of the ſigns, drop roſe-water into the eyes now and then; alſo waſh the face with cold water often in a day, and ſprinkle

ſprinkle the eyes with the ſame. For if the diſeaſe be mild, this method will prevent the puſtules breaking out in them. This indeed is to be done, for greater caution; for in the mild ſort it ſeldom happens, that any puſtules break out on the eyes. But in a bad ſort, when you ſee a large eruption in the beginning, with an itching of the eye-lids, and redneſs of the white of the eyes, ſome places of which are redder than others; you may be aſſured that the ſmall pox will break out there, unleſs great help be given: therefore immediately drop roſe water, in which ſumac has been infuſed, into the eyes, ſeveral times in the day.

It will be ſtill more effectual, to apply a *collyrium* made of galls in roſe-water, by dropping it into the eyes; or to inſtil into the eyes what is ſqueezed from the pulp and

ſkins

ſkins of the four pomegranate, firſt chewed. Then waſh the eye-lids with a *collyrium* made of the water of quinces, the juice of unripe grapes, boxthorn, aloe, and acacia: of each of theſe let there be one part, and a tenth part of ſaffron; and drop ſome of it into the eyes.

But if you obſerve a turgeſcence in the humors, and the eruption to be very copious, ſo that puſtules will certainly fall upon the eyes, becauſe redneſs appears here and there in their white part, from the exceſs of the inflammation; and alſo find, that what you have applied does not remove that redneſs, but only leſſen it for a time; after which it returns more violently than before, or at leaſt continues as it was, when you began this treatment; you muſt not proceed any longer in this method, but, inſtead of theſe things,

drop into the eyes ſome of the acid liquor expreſſed from mouldy bread, with the *Nabathaean bitter*, in which there is no vinegar, or other acid.

As to the puſtules, which break out in the *tunica cornea* of the eye, theſe darken the ſight; and are to be cured, according to the degree of their thickneſs, by ſuch diſſolving remedies, as I am going to deſcribe: which indeed are ſometimes effectual, and ſometimes not; the ſucceſs depending upon the matter being more or leſs thick, and upon the greater or leſs firmneſs and dryneſs of the body.

But if large puſtules ſhew themſelves in the *tunica uvea*, uſe the collyrium of roſe-water ſeveral times in the day and night, with great diligence; or elſe that before-mentioned, leaving out the ſaffron; inſtead of which, put a ſmall quantity

tity of blood-ſtone, to keep down the ſwelling.

THESE things are what ought to be known concerning the eyes. Care is next to be taken of the throat and mouth, leſt any eruption there ſhould grieve the patient, and hinder his breathing: for it often happens, that in a bad kind of the diſeaſe, terrible ſuffocations are brought on, which leave no hopes of a recovery.

THEREFORE, on the firſt appearance of the ſigns of the ſmall pox, let the mouth be gargled with the water of acid pomegranates, or of ſumac, or with the juice of mulberries, or with ſome of thoſe things, which we have recommended, (chap. V.) under the head of extinguent remedies; or laſtly, if nothing elſe be ready at hand, with pure cold water; and that very often, to prevent a great eruption

into the throat and mouth, and ſtrengthen thoſe parts, or at leaſt hinder what is already broken out there from cauſing a ſuffocation. Be quick therefore and diligent in applying this cure, eſpecially, if from a hoarſeneſs of voice, ſtreightneſs in breathing, and a pain in the throat, a neceſſity of it ſhall appear.

MOREOVER, if the ſtrength will bear it, take away blood from the cephalic vein; and that even after the whole eruption is over. And if the patient find any thing in his mouth, or throat, which hurts him; and yet there is not too great a heat there, neither are his bowels too looſe, let him lick by degrees of freſh butter mixed with white ſugar-candy. But if there be any heat and inflammation there, give a linctus of this kind.

TAKE

TAKE of ſweet almonds decorticated one part; of the ſeeds of gourd two parts; of white ſugar-candy three parts; the mucilages of the ſeeds of fleawort, and of laurel berries; a linctus of gum arabic, almonds peeled, and the ſeeds of the plane tree, and wheat flower: mix all theſe with a mucilage of quince ſeeds.

IN the next place, let us take care of the limbs: for upon theſe a number of very bad puſtules often ariſe, which corrupt them to ſuch a degree, that the muſcles, tendons, nerves, and the bones themſelves lie bare. Aſſiſt therefore immediately, if you obſerve the ſigns of the diſeaſe to be violent and exceſſive; that is, bathe the limbs with ſanders, quince water, Armenian bole, roſes, camphire, vinegar, and roſe water: but take care not to overdo it. If the puſtules are very large,

open them with an inciſion knife, to let out the matter: and delay not this operation, for the caſe is dangerous.

Now let us come to the cure of the noſe and ears, leſt they ſhould be overfilled with the pimples: for this will greatly afflict the patient; and when they break out in the internal part of the ear, there is danger of their coming preſently into the noſe. Take therefore a cotton cloth, upon which camphire has been broken; by the help of this, put into the ear fragrant wine vinegar, to which has been added quince water, or the juice of boxthorn. Do this in the morning, and repeat it twice or thrice a day.

LASTLY, if a great pain ariſes in the ſoles of the feet, prepare inſtantly to anoint them with warm oil, and foment them with warm water

ter and cotton. If this does not aſſwage the pain, nor facilitate the eruption, beat up decorticated ſeſam with milk; anoint with it, and bind it on with cloths, and leave it upon the part all night. In the morning, put the foot into warm water; and repeat the ſame again. Or bruiſe dates with butter, and apply them; or, laſtly, anoint with the lees of the ſeſamine oil. For, theſe, and the like things, ſoften and relax the ſkin; and by this means diminiſh the pain, and promote the eruption.

CHAP. VIII.

Of ripening the ſmall pox.

WHEN, after the eruption is completed, you obſerve the puſtules tend too ſlowly to maturity, and yet that the patient is otherwiſe in a very good way, as to his reſpiration and pulſe, and pretty free from inquietude and anxiety; then it behoves you, to aſſiſt the maturation of the puſtules.

BUT if, together with a backwardneſs of ripening after the eruption, you perceive the puſtules to become hard and warty, and the patient not at all better; or if his illneſs increaſes; then you are to know that the ſmall pox is mortal. Wherefore have no thoughts of ripening the

the puſtules; for they are of that kind, which cannot be ripened.

Now, the maturation of the ſmall pox, if curable, is to be effected by fomenting the body with the ſteam of a hot decoction in water of camomile, violets, melilot, marſhmallows, and bran, either ſeparate, or collected together in two baſons; as we have directed above, where we treated of facilitating the eruption.

And if then the patient ſeems to find relief and refreſhment by the fomentation; you are to abſtain from thoſe fumigations, which are commonly employed for drying up the puſtules; until they ripen of themſelves, and are capable of bearing thoſe things, which contribute towards drying them up: of which we are now going to treat.

CHAP.

CHAP. IX.

Of drying the puſtules.

IF the puſtules are large and very numerous, they muſt be dried; or the fluid contained in them muſt be ſoaked up with fine clean cotton, in which there is nothing that may hurt the patient. And then let fumigations be made with the leaves of dried roſes, or with the leaves of the ſtorax tree, or with ſanders, or with the leaves of the *iris*, or the tamariſk: and indeed roſes are more convenient in ſummer, but tamariſk in winter.

THE ſmall pox ſometimes abounds with too much moiſture. When that happens, order the patient to lie on pounded roſes, or on rice meal, or

on

on millet meal, with which a matraſs of a thin texture is ſtuffed.

If the body be full of puſtules, lay moiſt leaves of the *iris* under the patient; and beſprinkle him with an aromatic powder, made of aloe, frankincenſe, ſarcocol, and dragon's blood.

But if the puſtules break ſpontaneouſly, or from the quantity of the fluid contained in them, and are ſlow in drying; treat them in this manner.

Take of ſeſamine oil one ounce; of Andarene[1] ſalt pounded fine, and of alum, each two drachms. With this liniment anoint the body, carefully avoiding thoſe places, which are ulcerated or excoriated, or even too near an approach to them; be-

[1] *Andar* is a village, a mile diſtant from *Aleppo*, where a very white foſſil ſalt is found. See *Maundrell's journey*.

cauſe

cauſe the medicine would raiſe a violent inflammation. Let the liniment lie on the parts for the ſpace of an hour: then waſh it off with a decoction in water of emblic myrobalans, white tamariſk berries, myrtle leaves, and pomegranate peels.

If the puſtules are dried by theſe means, it is well; if not, take the whiteſt ſort of bole (not the red bole) add to it of Andarene ſalt, and of dry bread crumbled fine, each a tenth part. Make a liniment, with which rub the ſkin; let it lie on for an hour or two, and then waſh it off.

Now we are to treat of taking off the dried ſcales, and cruſts, or eſchars.

CHAP. X.

Of taking away the dry ſcabs and eſchars.

WHEN the ſmall pox is withered, and the dry ſcales and eſchars ſtill remain on the skin, examine them well; and to thoſe, that are ſmall and thoroughly dried up, apply warm ſeſamine oil every now and then, till they are ſoftened, and fall off: but thoſe of the face are to be managed with oil of piſtaches. For the larger ſort, which reſemble eſchars; if you find any moiſture remaining in them, cut them off carefully, without any application of oil. And if the places, from whence you have removed the eſchars, contain but little moiſture; it is to be dried up with ſoft cotton,

as

as I have already ſaid: but if they contain much, they are to be dried gradually; beſprinkling them with the red aromatic powder, compoſed of aloe, frankincenſe, ſarcocol, and dragon's blood, eſpecially if they begin to leſſen and ſink in; and with alum, and Andarene ſalt, if they are even with the reſt of the ſurface of the body, and do not ſink in: then wait till a new eſchar or ſcab is formed on them. If there be any return of moiſture, repeat the ſame dreſſings. And in fine, when the moiſture is entirely exhauſted, then anoint the parts with oil, until the cruſts are ſoftened, and all fallen off.

NEXT follows a diſcourſe on deſtroying the marks of the ſmall pox.

CHAP.

CHAP. XI.

Of deſtroying the marks of the ſmall pox.

THE marks of the ſmall pox are of two ſorts: for they are either in the eye, or on the reſt of the body. Now with reſpect to the eye, the part, on which the ſmall pox broke out, has an opaque whiteneſs in it, as we have already obſerved. If this happens in the eyes of children or young perſons, of a moiſt conſtitution of body, and tender ſkin, it will be the more eaſily deterged.

Now the medicines, which deterge the eye, and take off the whiteneſs, are theſe: borax, or nitre made into cakes, Andarene ſalt, ſal ammo-

ammoniac, glaſs, the ſcoriæ of glaſs, coral, tutty, lapis hæmatites, verdigreaſe; baſtard ſponge, the ſea crab, the dungs or excrements of ſparrows, ſwallows, ſtarlings, mice, bats, and of the Arabian or Libyan lizzard; musk, the ſediment of urine; the acorus, ebeny, cornel-water, Arabian ſugar, dregs of vinegar burnt, myrrh, ſandaracha or juniper gum, commonly called varniſh, gums of the olive and bitter almond trees, and the milky juice of wild lettice. It will be beſt to uſe theſe, when the patient is juſt come out of the bath, or after holding his head over the ſteam of hot water. But mild medicines alone, nay the mildeſt of theſe, are to be employed, eſpecially in ſoft and moiſt bodies.

THE deſcription of a mild medicine, which removes the white ſpecks from the eye.

LET

LET the eye be ſprinkled with ſarcocol and white ſugar-candy.

ANOTHER more efficacious.

LET the eye be ſprinkled with baſtard ſponge, ſarcocol, and ſugar.

ANOTHER ſtill more powerful.

TAKE of verdigreaſe ten drachms; myrrh, ſagapenum, ſal ammoniac, ſarcocol, of each two drachms and half; baſtard ſponge, ſcoriæ of glaſs, and borax, or nitre in cakes, of each three drachms. Then take of ſweet cane ten drachms, and the ſame quantity of cornel water. Boil theſe in ten times the weight of water, till the decoction becomes thick: then diſſolve the gums in it, and mix all well together into an ophthalmic *collyrium*. Afterwards, as occaſion ſhall require, to this mixture add ebeny in an oil bottle. Cleanſe the part affected gently and often with a needle or ſtyle; taking

care to apply the *collyrium* frequently, both before and after the operation. And laſtly, ſprinkle it with the powder of the milder ſort of the medicines. But be ſure to look carefully into the eye every day. For if it be pained, or look angry, omit this treatment for ſome days, and then repeat it: for this method of cure is very powerful and efficacious.

As to the medicines, which take off the marks of the ſmall pox from the face and the reſt of the body, they are theſe: white litharge, dried reed roots, rotten bones powdered, baſtard ſponge, coral, ſarcocol, almonds, birthwort, the Ben nut, radiſh ſeed, pumpion ſeed, rocket ſeed, the flower of beans, rice, lupins, and kidney-beans. On theſe pour the *aqua amurcæ*, and barly water.

THE deſcription of a liniment, which

which effaces the marks of the ſmall pox.

TAKE of the flower of chiches and beans, each three drachms; of pumpion ſeed five drachms; of white litharge two drachms; of dried reed roots three drachms. Pound all together in barly water: then apply it to the parts ſeveral times ſucceſſively, after the patient has received the ſteam of hot water, or after coming out of the bath. Then again waſh him in a bath made of pumpion rinds, and dried violets, and bran, and pounded chiches, boiled in water: rub him well, and apply the liniment a ſecond time.

THE deſcription of another liniment of greater efficacy.

TAKE of bean meal five drachms; bitter almonds, ſweet coſtus, rocket ſeed and radiſh ſeed, of each two

drachms and half: apply it, as we have already directed.

ANOTHER liniment more efficacious ſtill.

TAKE of bitter almonds peeled five drachms; radiſh ſeed, rocket ſeed, roots of coſtus, and long birthwort, of each two drachms and half; of borax or nitre made into cakes three drachms; of pepper one drachm and half: uſe them, as we have already directed. Afterwards, waſh the parts with radiſh water, or with thoſe things, which we have ordered. And thoſe are the medicines, which efface the marks and ſcars of the ſmall pox.

BUT in order to efface the pock holes, and render them even with the reſt of the ſurface of the body, do thus: let the body be anointed with butter, and well tinged with the herb *cyperis*, or with its powder:

der: let the patient uſe the bath frequently, and be rubbed down after it.

Now we are to direct, what ought to be given to a patient in the ſmall pox by way of aliment, and to treat of the medicines, which have relation to it.


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CHAP. XII.

Of the diet of patients in the ſmall pox.

TO a patient in the ſmall pox it is neceſſary to give barly water, prepared in the ſame manner, and with the ſame art, as that, which is uſually given to perſons in acute and hot diſeaſes. If the fever be moderate, and the body ſomewhat coſtive, it muſt be ſweetened with white ſugar-candy: but if the heat of the fever be intenſe, and the body looſe, pour to it half a meaſure of the juice of acid pomegranates pounded with their ſeeds: but the pulps and inward thin tunicles are to be avoided; for they are laxative.

IF the patient be reſtleſs, and cannot

cannot ſleep, add to the barly water ſome proportion of poppy. But if the body be very looſe, add to the barly water one part of dry ſeeds of acid pomegranates, and one part of poppy.

But if it be requiſite to bind the body, inſtead of barly water, take meal of peeled barly, and the meal of pomegranate ſeeds: boil theſe in the ſame manner as barly water is made, and let the ſick drink of this, as he would drink of barly water; either alone, or with Bambu ſugar and gum Arabic mixed with it, if a looſeneſs ſhould make it neceſſary; or with the medicines, which I ſhall deſcribe anon. For barly water, mixed with pomegranate juice, is very ſerviceable in the ſmall pox, and more eſpecially in the meaſles. But the waters of the gourd, of the Indian pumpion, and of the cucum-

ber; the mucilage of fleawort ſeeds, and the like, of what ever kind, which make a mild phlegm, and eaſy to be ſpit up; theſe waters, I ſay, are more uſeful in the meaſles, than in the ſmall pox; unleſs it be in thoſe ſorts of the ſmall pox, which are accompanied with a malignity and heat, together with a violent fever and want of ſleep.

But in thoſe caſes of the ſmall pox, wherein the fever and inflammation are not ſo vehement, thoſe things above mentioned, and others of the like kind, have no other effect, but to render them ſlower, and to protract the whole courſe of the diſeaſe: wherefore it will be your buſineſs to have recourſe to this or that ſort of medicines, or to abſtain from them, as occaſion ſhall require. For when the ſmall pox happens to be in the higheſt degree of heat

heat and putrefaction, with the addition of moiſture; then thoſe things, which have a cooling, drying, and condenſing quality, are more proper: ſuch as juice of pomegranates, verjuice, and others of the ſame nature.

But when the diſeaſe is the meaſles, which ariſe from a vehement ebullition of the bile blended with the blood; thoſe things, which have the twofold virtue of cooling and humecting, are the moſt proper in their cure: inaſmuch as the corrupted blood is tempered and corrected by their means. For the blood of a perſon in the meaſles, is like ſtagnating water, which putrefies by long ſtanding; whereby its natural texture is deſtroyed, and, by the action of the ſun, it contracts a vicious acrimony. But if theſe waters are mixed with rain or any other

other running ſweet water; they ſoon recover their former wholeſomeneſs.

Moreover, in the ſmall pox barly gruel is beneficial, if it be taken with ſugar and pomegranate juice, or with a proper quantity of julep; giving due attention to the patient's looſe or coſtive ſtate, as likewiſe to his greater or leſſer degree of heat: except that barly water is lighter to take, eaſier to ſwallow, and more ſuitable to the throat and breaſt. Wherefore act according to theſe directions, after you have been apprized, that barly water is more proper for perſons in the meaſles, than in the ſmall pox; unleſs the ſmall pox happen to be of a bad ſort, in the manner we have mentioned.

As to the reſt, vetches well cleanſed are good in the ſmall pox, if a food be

be prepared of them with the juice of acid pomegranates, or with vinegar: the meal of lentils is uſeful alſo, if the meal be wrought up with cold water.

KNOW likewiſe, that cold water is more ſerviceable to a patient in the meaſles, than in the ſmall pox; as being ſafer, and of a more certain effect.

NOW, when you ſee the ſmall pox attended with great inflammation, and a ſtoppage in the pulſe and reſpiration; then give extinguiſhing medicines, proportioned to the ſymptoms: if they are leſs urgent, employ few; if very urgent, employ many.

But never allow the eating of young birds, until the pulſe and breath have returned to their natural ſtate; nor till the puſtules are thoroughly

thoroughly withered, and the ſcabs fallen off.

LET us now turn the diſcourſe upon looſening the belly, and reſtringing the ſame, in the ſmall pox.

CHAP. XIII.

Of managing the diſcharges of the belly in the ſmall pox.

THE belly is generally looſe in the ſmall pox and meaſles towards their decline, but eſpecially in the meaſles. For which reaſon every thing muſt be avoided, which opens the body, after the ſmall pox and meaſles are conducted to the end; even though the body be bound. But if it be lax, inſtantly abſtain carefully from thoſe things, which give ſtools: altho' it be neceſſary in the beginning of theſe two diſeaſes, and before they are on the decline, to give a laxative. For it is ſometimes requiſite to open the body in the ſmall pox, either upon account of the exceſs of heat, and pain

pain in the head; or in order to eaſe nature of her load, and leſſen the morbific matter, when you have reaſon to think it over-abundant. And it will be really ſo, when you find the body, both before and after bleeding, neither weakened nor waſted; but, on the contrary, bloated and full, with a paleneſs, or a little redneſs, and a fluctuating pulſe. For ſometimes in ſuch a ſtate, bleeding will not be neceſſary, and it will be ſufficient to evacuate the ſuperfluous humidity: and that eſpecially, when the aforeſaid ſigns evidently appear; and beſides, if through the ſluggiſhneſs of the fever, the body be dejected, and entirely void of a red colour. In this ſtate, a very proper medicine is a decoction of yellow myrobalans, if it be drank with white hard ſugar, and the juice of an acid pomegranate, (two or three, if there be occaſion)

caſion) bruiſed with the pulp and internal tunicles. For it is the quality of theſe two medicines, to purge the body of the ſuperfluous humors, together with part of the bile, without raiſing any heat; eſpecially the pomegranate juice; and to leave nothing behind them in the inteſtines. And this is the beſt medicine, which can be given in this caſe.

But in the meaſles give the juice of Damaſcene plums, and the plums themſelves, freſh gathered, either alone, or bruiſed with julep, adding ſugar to them. But avoid the medicine called *Tarangioben* [1]: for it is as prejudicial in the meaſles, as honey is in the ſmall pox; both upon account of the exceſſive heat,

[1] A ſort of *Manna* among the *Sogdians*, *Medes*, and *Babylonians*, which concretes on the leaves of certain ſhrubs, and is gathered thence.

which

which it occaſions, and of increaſing the nauſeating and uneaſineſs of the ſick. In like manner, carefully avoid giving them the juice of ivy or of the black violet to drink: becauſe they both equally heighten the diſorder in the body.

Now whereas the firſt and moſt neceſſary remedy in the ſmall pox is, to draw blood, when it is too much in quantity, or there is no proſpect of checking its ebullition by any other means, even by extinguents; but there is a neceſſity for taking a little away, as well for relieving nature, as for abating the fulneſs of the blood veſſels, and eaſing them of their over-great load, which muſt otherwiſe be productive of very bad conſequences; eſpecially if the blood be heated to that degree, that a violent inflammation might enſue: in the ſame manner, it behoves you,

in

in the beginning of the meaſles, to draw off ſome of the bile, when you perceive it over abundant; and then to purſue what remains of it by extinguents. Now the ſign of an exceſſive redundancy of the bile is, the violence of the inflammation, and the uneaſineſs, together with the diſcharge of the ſame bile, both by vomit and ſtool, and a bitterneſs in the mouth.

BUT if the quantity of the bile is not exceſſive, and yet there is an uneaſineſs, and thirſt, and vehement heat, without any appearance of bile, either by vomit or ſtool; though its quantity, I ſay, be not exceſſive, we may however judge it to be of a bad quality, in proportion to the violence of the inflammation and uneaſineſs.

AND this is what I have thought proper, that you ſhould know, con-

cerning the management of the discharges of the belly, when it is loose in the beginning of these two distempers. Now, if the belly be lax, give nothing laxative: for in this case, any thing that increases the discharges is not safe in either of the distempers. But while the belly continues loose, order the patient, instead of barly water, to drink barly gruel; and if it be necessary, boil the barly gruel with meal of pomegranate seeds; of which let him drink, before he returns to the use of barly water. And if, this notwithstanding, the looseness still increases, mix gum Arabic and Bambu sugar in his drink in this manner.

TAKE of gum Arabic two drachms; of Bambu sugar one drachm: reduce them to the consistence of a collyrium: then on four ounces of the

the barly gruel pour ſome of the medicine, which I am going to deſcribe; let it ſtand for an hour, and give it to the patient to drink.

THE deſcription of the medicine.

TAKE of red roſes ground fine, Bambu ſugar, ſorrel ſeed, ſumac, and berberies, of each equal parts; alſo gum Arabic, ſealed earth, poppy rinds, balauſtines, or pomegranate flowers, of each half the quantity: let the patient drink three drachms of theſe, with one ounce of the juice of acid pomegranates.

BUT if the looſeneſs ſtill continues, and has weakened the patient, give him draughts of *Al-raib*, that is, ſour ſkimmed milk, with the beſt ſort of biſcuit, and a little gum Arabic.

FINALLY, whenever a dyſentery appears, the method of cure muſt

be taken from the place, where we have treated of that ſubject.

Now it remains, that we ſpeak of thoſe, who recover, and of thoſe, who die of the ſmall pox and meaſles.

CHAP.

CHAP. XIV.

Of the curable and incurable ſmall pox and meaſles.

THE ſmall pox and meaſles are of the number of hot diſeaſes, and therefore have many things in common with them. Now the chief prognoſtic ſigns in thoſe, who recover, are, a freedom of reſpiration, a thorough ſoundneſs of mind, and an appetite for food; an agility to motion; a right ſtate of the pulſe; the patient's good opinion of his diſeaſe; a convenient poſture in bed; and but little toſſing about and inquietude of body.

HENCE a judgment may be formed of bad ſigns, the greateſt part

part of which we have related in the book intituled *Al-manſori*[1].

THESE things following particularly regard the ſmall pox and meaſles.

WHEN the puſtules of the ſmall pox are white, large, ſeparate, few in number, eaſy and ſpeedy in coming out, and the fever not violent or burning, nor attended with much inquietude of body or concern of mind; and are ſo qualified, that the heat, concern, and inquietude diminiſh upon their eruption, and entirely ceaſe, when the eruption is completed: that ſort is curable, and threatens little or no danger. To theſe the next in goodneſs are, white large puſtules, though very numerous and coherent; if they come out eaſily, and their total e-

[1] There is a MS. copy of this book in the Bodleian library, *Narciſſ. Marſh*, N° 376.

ruption

ruption eaſes the patient of his uneaſineſs and exceſſive heat, as we have already mentioned.

But when their eruption is performed with difficulty, and the patient does not grow better upon their coming out, they are a bad ſort: although there is not ſo much reaſon to be afraid, if he ſhould be ill while they are coming out, as if he continues ſo after the eruption.

But there is a bad, and even a fatal ſort of white large puſtules, to wit, thoſe which run together, and ſpread, ſo that many of them unite, and occupy large ſpaces of the body; or become like broad circles, and in colour reſemble fat.

As to thoſe puſtules, which are white, very ſmall, coaleſcing, hard, warty, and contain no fluid; they are of a bad kind: and their badneſs

neſs is in proportion to the degree of difficulty in their ripening, and to the continuance of the ſymptoms on their eruption. But if the ſymptoms are not abated, after the eruption is finiſhed; it is a mortal ſign.

THOSE puſtules alſo are all bad, which turn green, purple, or black. But if, beſides, a ſwooning and palpitation of the heart come on; this is the worſt ſign of all, nay a ſign of certain death.

AND when the fever increaſes after the eruption of the ſmall pox, it is a bad ſign. But if the fever ceaſes at the time of the eruption, it is a good ſign. Doubled puſtules indicate a great quantity of the matter of the diſeaſe: and if they are of the curable kind, they portend recovery;

covery; but if of the mortal kind, death.

THOSE meaſles are the ſafeſt, which have not too much redneſs: but if they turn pale, it is a bad ſign; the green and purple ſorts are both mortal. When either the ſmall pox or meaſles ſink in ſuddenly, after they began to ſhoot out; and then the patient is ſeized with inquietude and anxiety, and a ſwooning comes on; it is a ſign of ſpeedy death; unleſs they puſh out again, after they have ſubſided.

IF the puſtules appear on the firſt day of the fever, they will haſten their progreſs, and be of quicker motion: if the eruption is protracted to the third day, it will advance moderately; but if the firſt appearance paſſes the fourth day, the eruption will be completed dully and ſlowly.

When the appearance begins on the good critical days, it is a ſalutary ſign, eſpecially if the patient finds himſelf better at the end of the eruption; and ſo on the contrary. But when the puſtules begin to run into one another, and to ſpread; and at the ſame time the inquietude increaſes conſiderably, and the belly ſwells or is bloated; then death is near at hand. When the ſmaller ſort of puſtules, which contain no fluid, grow hard; and a *delirium* comes on at the ſame time; the patient is near his end. When it happens that the ſmall pox and meaſles appear and diſappear alternately, and are attended with anxiety and a delirium; this is a ſign of death, of what colour ſoever the puſtules are: but it is ſeldom the caſe of white puſtules, or of thoſe, which ripen quick. When towards the end of the ſmall pox,

there

there is a great perturbation of the humors, and the patient is ſeized with a very violent pain in a leg, hand, or any other limb; or the puſtules are ſpeedily converted into a green or red colour; and thereupon he grows weaker than he was before, and the weakneſs ſtill increaſes by the quick returns of the pain, and the limb contracts various colours; theſe are ſigns of death. But if nevertheleſs the patient grows ſtronger, he will recover, and that limb will be cured.

Now if you ſcarify that limb the very moment, when the pain begins to ſeize it, you will render great ſervice to the patient, if he grows ſtronger after the inciſion; and the limb will alſo be preſerved from mortification.

But, in this dangerous caſe, nothing cooling muſt be applied to

the limb, upon any account whatſoever: but either ſcarify it, or plunge it into hot water, if you ſee that the patient can bear it.

WHEREFORE, as we have run over all the articles, which we propoſed to ourſelves; and have amply enough treated, both of this diſeaſe, and the method of preſervation from it; we here break off the thread of our diſcourſe.

To the beſtower of ſtrength to finiſh this work, be praiſe without end, as he is worthy of being celebrated and praiſed.

The END.

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